

## SEQUENCE LISTING

- <110> Genentech, Inc.  
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- <120> Secreted and Transmembrane Polypeptides and Nucleic  
Acids Encoding the Same
- <130> 10466-14
- <140> 09/665,350  
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- <150> PCT/US00/04414  
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- <150> US 60/143,048  
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- <150> US 60/145,698  
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- <150> US 60/146,222  
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- <150> PCT/US99/20594  
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- <150> PCT/US99/20944  
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<212> PRT

<213> Homo sapiens

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Arg Cys Arg Gly Leu Val Asp Lys Phe Asn Gln Gly Met Val Asp Thr
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Ala Lys Lys Asn Phe Gly Gly Gly Asn Thr Ala Trp Glu Glu Lys Thr
      50             55             60

Leu Ser Lys Tyr Glu Ser Ser Glu Ile Arg Leu Leu Glu Ile Leu Glu
      65             70             75             80

Gly Leu Cys Glu Ser Ser Asp Phe Glu Cys Asn Gln Met Leu Glu Ala
      85             90             95

Gln Glu Glu His Leu Glu Ala Trp Trp Leu Gln Leu Lys Ser Glu Tyr
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Pro Asp Leu Phe Glu Trp Phe Cys Val Lys Thr Leu Lys Val Cys Cys
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Ser Pro Gly Thr Tyr Gly Pro Asp Cys Leu Ala Cys Gln Gly Gly Ser
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Gln Arg Pro Cys Ser Gly Asn Gly His Cys Ser Gly Asp Gly Ser Arg  
145 150 155 160

Gln Gly Asp Gly Ser Cys Arg Cys His Met Gly Tyr Gln Gly Pro Leu  
165 170 175

Cys Thr Asp Cys Met Asp Gly Tyr Phe Ser Ser Leu Arg Asn Glu Thr  
180 185 190

His Ser Ile Cys Thr Ala Cys Asp Glu Ser Cys Lys Thr Cys Ser Gly  
195 200 205

Leu Thr Asn Arg Asp Cys Gly Glu Cys Glu Val Gly Trp Val Leu Asp  
210 215 220

Glu Gly Ala Cys Val Asp Val Asp Glu Cys Ala Ala Glu Pro Pro Pro  
225 230 235 240

Cys Ser Ala Ala Gln Phe Cys Lys Asn Ala Asn Gly Ser Tyr Thr Cys  
245 250 255

Glu Glu Cys Asp Ser Ser Cys Val Gly Cys Thr Gly Glu Gly Pro Gly  
260 265 270

Asn Cys Lys Glu Cys Ile Ser Gly Tyr Ala Arg Glu His Gly Gln Cys  
275 280 285

Ala Asp Val Asp Glu Cys Ser Leu Ala Glu Lys Thr Cys Val Arg Lys  
290 295 300

Asn Glu Asn Cys Tyr Asn Thr Pro Gly Ser Tyr Val Cys Val Cys Pro  
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<210> 4

<211> 379

<212> PRT

<213> Homo sapiens

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Pro Phe Thr His Asp Phe Arg Lys Ala Gln Gln Arg Met Pro Ala Ile

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| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Pro | Val | Asn | Ile | His | Ser | Met | Asn | Phe | Thr | Trp | Gln | Ala | Ala | Gly | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ala | Glu | Tyr | Phe | Tyr | Glu | Phe | Leu | Ser | Leu | Arg | Ser | Leu | Asp | Lys | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Met | Ala | Asp | Pro | Thr | Val | Asn | Val | Pro | Leu | Leu | Gly | Thr | Val | Pro |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| His | Lys | Ala | Ser | Val | Val | Gln | Val | Gly | Phe | Pro | Cys | Leu | Gly | Lys | Gln |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Gly | Val | Ala | Ala | Phe | Glu | Val | Asp | Val | Ile | Val | Met | Asn | Ser | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Asn | Thr | Ile | Leu | Gln | Thr | Pro | Gln | Asn | Ala | Ile | Phe | Phe | Lys | Thr |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Cys | Gln | Gln | Ala | Glu | Cys | Pro | Gly | Gly | Cys | Arg | Asn | Gly | Gly | Phe | Cys |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asn | Glu | Arg | Arg | Ile | Cys | Glu | Cys | Pro | Asp | Gly | Phe | His | Gly | Pro | His |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Cys | Glu | Lys | Ala | Leu | Cys | Thr | Pro | Arg | Cys | Met | Asn | Gly | Gly | Leu | Cys |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Val | Thr | Pro | Gly | Phe | Cys | Ile | Cys | Pro | Pro | Gly | Phe | Tyr | Gly | Val | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Cys | Asp | Lys | Ala | Asn | Cys | Ser | Thr | Thr | Cys | Phe | Asn | Gly | Gly | Thr | Cys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Phe | Tyr | Pro | Gly | Lys | Cys | Ile | Cys | Pro | Pro | Gly | Leu | Glu | Gly | Glu | Gln |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Cys | Glu | Ile | Ser | Lys | Cys | Pro | Gln | Pro | Cys | Arg | Asn | Gly | Gly | Lys | Cys |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ile | Gly | Lys | Ser | Lys | Cys | Lys | Cys | Ser | Lys | Gly | Tyr | Gln | Gly | Asp | Leu |
| 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Cys | Ser | Lys | Pro | Val | Cys | Glu | Pro | Gly | Cys | Gly | Ala | His | Gly | Thr | Cys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| His | Glu | Pro | Asn | Lys | Cys | Gln | Cys | Gln | Glu | Gly | Trp | His | Gly | Arg | His |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Cys | Asn | Lys | Arg | Tyr | Glu | Ala | Ser | Leu | Ile | His | Ala | Leu | Arg | Pro | Ala |
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<223> Description of Artificial Sequence: Synthetic  
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<220>
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<223> Description of Artificial Sequence: Synthetic
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| Case | Age | Sex | Duration | Site   | Pathologic     | Response | Survival |
|------|-----|-----|----------|--------|----------------|----------|----------|
| 1    | 65  | M   | 10 yr    | Rectum | Adenocarcinoma | CR       | 10 yr    |
| 2    | 68  | M   | 12 yr    | Rectum | Adenocarcinoma | CR       | 12 yr    |
| 3    | 72  | M   | 15 yr    | Rectum | Adenocarcinoma | CR       | 15 yr    |
| 4    | 75  | M   | 18 yr    | Rectum | Adenocarcinoma | CR       | 18 yr    |
| 5    | 78  | M   | 20 yr    | Rectum | Adenocarcinoma | CR       | 20 yr    |
| 6    | 80  | M   | 22 yr    | Rectum | Adenocarcinoma | CR       | 22 yr    |
| 7    | 82  | M   | 24 yr    | Rectum | Adenocarcinoma | CR       | 24 yr    |
| 8    | 85  | M   | 26 yr    | Rectum | Adenocarcinoma | CR       | 26 yr    |
| 9    | 88  | M   | 28 yr    | Rectum | Adenocarcinoma | CR       | 28 yr    |
| 10   | 90  | M   | 30 yr    | Rectum | Adenocarcinoma | CR       | 30 yr    |
| 11   | 92  | M   | 32 yr    | Rectum | Adenocarcinoma | CR       | 32 yr    |
| 12   | 95  | M   | 35 yr    | Rectum | Adenocarcinoma | CR       | 35 yr    |
| 13   | 98  | M   | 38 yr    | Rectum | Adenocarcinoma | CR       | 38 yr    |
| 14   | 100 | M   | 40 yr    | Rectum | Adenocarcinoma | CR       | 40 yr    |
| 15   | 102 | M   | 42 yr    | Rectum | Adenocarcinoma | CR       | 42 yr    |
| 16   | 105 | M   | 45 yr    | Rectum | Adenocarcinoma | CR       | 45 yr    |
| 17   | 108 | M   | 48 yr    | Rectum | Adenocarcinoma | CR       | 48 yr    |
| 18   | 110 | M   | 50 yr    | Rectum | Adenocarcinoma | CR       | 50 yr    |
| 19   | 112 | M   | 52 yr    | Rectum | Adenocarcinoma | CR       | 52 yr    |
| 20   | 115 | M   | 55 yr    | Rectum | Adenocarcinoma | CR       | 55 yr    |
| 21   | 118 | M   | 58 yr    | Rectum | Adenocarcinoma | CR       | 58 yr    |
| 22   | 120 | M   | 60 yr    | Rectum | Adenocarcinoma | CR       | 60 yr    |
| 23   | 122 | M   | 62 yr    | Rectum | Adenocarcinoma | CR       | 62 yr    |
| 24   | 125 | M   | 65 yr    | Rectum | Adenocarcinoma | CR       | 65 yr    |
| 25   | 128 | M   | 68 yr    | Rectum | Adenocarcinoma | CR       | 68 yr    |
| 26   | 130 | M   | 70 yr    | Rectum | Adenocarcinoma | CR       | 70 yr    |
| 27   | 132 | M   | 72 yr    | Rectum | Adenocarcinoma | CR       | 72 yr    |
| 28   | 135 | M   | 75 yr    | Rectum | Adenocarcinoma | CR       | 75 yr    |
| 29   | 138 | M   | 78 yr    | Rectum | Adenocarcinoma | CR       | 78 yr    |
| 30   | 140 | M   | 80 yr    | Rectum | Adenocarcinoma | CR       | 80 yr    |
| 31   | 142 | M   | 82 yr    | Rectum | Adenocarcinoma | CR       | 82 yr    |
| 32   | 145 | M   | 85 yr    | Rectum | Adenocarcinoma | CR       | 85 yr    |
| 33   | 148 | M   | 88 yr    | Rectum | Adenocarcinoma | CR       | 88 yr    |
| 34   | 150 | M   | 90 yr    | Rectum | Adenocarcinoma | CR       | 90 yr    |
| 35   | 152 | M   | 92 yr    | Rectum | Adenocarcinoma | CR       | 92 yr    |
| 36   | 155 | M   | 95 yr    | Rectum | Adenocarcinoma | CR       | 95 yr    |
| 37   | 158 | M   | 98 yr    | Rectum | Adenocarcinoma | CR       | 98 yr    |
| 38   | 160 | M   | 100 yr   | Rectum | Adenocarcinoma | CR       | 100 yr   |
| 39   | 162 | M   | 102 yr   | Rectum | Adenocarcinoma | CR       | 102 yr   |
| 40   | 165 | M   | 105 yr   | Rectum | Adenocarcinoma | CR       | 105 yr   |
| 41   | 168 | M   | 108 yr   | Rectum | Adenocarcinoma | CR       | 108 yr   |
| 42   | 170 | M   | 110 yr   | Rectum | Adenocarcinoma | CR       | 110 yr   |
| 43   | 172 | M   | 112 yr   | Rectum | Adenocarcinoma | CR       | 112 yr   |
| 44   | 175 | M   | 115 yr   | Rectum | Adenocarcinoma | CR       | 115 yr   |
| 45   | 178 | M   | 118 yr   | Rectum | Adenocarcinoma | CR       | 118 yr   |
| 46   | 180 | M   | 120 yr   | Rectum | Adenocarcinoma | CR       | 120 yr   |
| 47   | 182 | M   | 122 yr   | Rectum | Adenocarcinoma | CR       | 122 yr   |
| 48   | 185 | M   | 125 yr   | Rectum | Adenocarcinoma | CR       | 125 yr   |
| 49   | 188 | M   | 128 yr   | Rectum | Adenocarcinoma | CR       | 128 yr   |
| 50   | 190 | M   | 130 yr   | Rectum | Adenocarcinoma | CR       | 130 yr   |
| 51   | 192 | M   | 132 yr   | Rectum | Adenocarcinoma | CR       | 132 yr   |
| 52   | 195 | M   | 135 yr   | Rectum | Adenocarcinoma | CR       | 135 yr   |
| 53   | 198 | M   | 138 yr   | Rectum | Adenocarcinoma | CR       | 138 yr   |
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

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<210> 10  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

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<210> 11  
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 tctcgatggt gcctggtggt tctgcgtcg ccgaggggtg gtgtctgacc actgctacce 960  
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 caatgacatc taccaggtca ctctgtcta ccgctcggc tccaacgaca aggagatcat 1140  
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<210> 12

<211> 164

<212> PRT

<213> Homo sapiens

<400> 12

Met Trp Arg Cys Pro Leu Gly Leu Leu Leu Leu Leu Pro Leu Ala Gly  
 1 5 10 15

His Leu Ala Leu Gly Ala Gln Gln Gly Arg Gly Arg Arg Glu Leu Ala  
 20 25 30

Pro Gly Leu His Leu Arg Gly Ile Arg Asp Ala Gly Gly Arg Tyr Cys  
 35 40 45

Gln Glu Gln Asp Leu Cys Cys Arg Gly Arg Ala Asp Asp Cys Ala Leu  
 50 55 60

Pro Tyr Leu Gly Ala Ile Cys Tyr Cys Asp Leu Phe Cys Asn Arg Thr  
 65 70 75 80

Val Ser Asp Cys Cys Pro Asp Phe Trp Asp Phe Cys Leu Gly Val Pro  
 85 90 95

Pro Pro Phe Pro Pro Ile Gln Gly Cys Met His Gly Gly Arg Ile Tyr  
 100 105 110

Pro Val Leu Gly Thr Tyr Trp Asp Asn Cys Asn Arg Cys Thr Cys Gln  
 115 120 125

Glu Asn Arg Gln Trp His Gly Gly Ser Arg His Asp Gln Ser His Gln  
 130 135 140

Pro Gly Gln Leu Trp Leu Ala Gly Trp Glu Pro Gln Arg Leu Leu Gly  
 145 150 155 160

His Asp Pro Gly

<210> 13  
 <211> 533  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> modified\_base  
 <222> (33)  
 <223> a, t, c or g

<220>  
 <221> modified\_base  
 <222> (80)  
 <223> a, t, c or g

<220>  
 <221> modified\_base  
 <222> (94)  
 <223> a, t, c or g

<220>  
 <221> modified\_base  
 <222> (144)  
 <223> a, t, c or g

<220>  
 <221> modified\_base  
 <222> (188)  
 <223> a, t, c or g

<400> 13  
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 caattctctt gggacacatn acgcctgtcc tttngeccca gaacctgctg tcttgtagac 120  
 ccaccagcag cagggctgcc gcgntgggag tctcgatggt gcctgggtgt tctgctgctg 180  
 ccgagggntg gtgtctgacc actgctaccc cttctcgggc cgtgaacgag acgaggctgg 240  
 ccctgcgccc ccctgtatga tgcacagccg agccatgggt cggggcaagc gccaggccac 300  
 tgcccactgc cccaacagct atgttaataa caatgacatc taccaggtca ctcctgtcta 360  
 ccgcctcggc tccaacgaca aggagatcat gaaggagctg atggagaatg gccctgtcca 420  
 agccctcatg gaggtgcatg aggacttctt cctatacaag ggaggcatct acagccacac 480  
 gccagtgagc cttgggaggc cagagagata ccgccggcat gggaccact cag 533

<210> 14  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 14

ttcgaggcct ctgagaagtg gccc

24

<210> 15

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 15

ggcggatatct ctctggcctc cc

22

<210> 16

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 16

ttctccacag cagctgtggc atccgatcgt gtctcaatcc attctctggg

50

<210> 17

<211> 960

<212> DNA

<213> Homo sapiens

<400> 17

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gctgcttgcc ctgttgatgg caggcttggc cctgcagcca ggcactgccc tgctgtgcta 60
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gggggagcag tgctggaccg cgcgcacccg cgcagttggc ctctgaccg tcatcagcaa 180
aggtctgcagc ttgaactgcg tggatgactc acaggactac tacgtgggca agaagaacat 240
cacgtgctgt gacaccgact tgtgcaacgc cagcggggcc catgccctgc agccggctgc 300
cgccatcctt gcgctgctcc ctgcactcgg cctgctgctc tggggacccg gccagctata 360
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tcctcacaga cctggcccag tgggagcctg tcctggttcc tgaggcacat cctaacgcaa 480
gtctgaccat gtatgtctgc acccctgtcc cccaccctga ccctcccatg gccctctcca 540
ggactcccac ccggcagatc agctctagtg acacagatcc gcctgcagat ggccccctcca 600
accctctctg ctgctgtttc catggcccag cattctccac ccttaaccct gtgctcaggc 660
acctcttccc ccaggaagcc ttccctgccc accccatcta tgacttgagc caggtctggg 720
ccgtgggtgc ccccgacccc agcaggggac aggcactcag gagggcccag taaaggctga 780
gatgaagtgg actgagtaga actggaggac aagagtcgac gtgagttcct gggagctccc 840
agagatgggg cctggaggcc tggaggaagg ggccaggcct cacattcgtg gggctccctg 900
aatggcagcc tgagcacagc gtaggcctt aataaacacc tgttggataa gccaaaaaaa 960

```

<210> 18

<211> 189

<212> PRT

<213> Homo sapiens

&lt;400&gt; 18

Met Thr His Arg Thr Thr Thr Trp Ala Arg Arg Thr Ser Arg Ala Val  
 1 5 10 15

Thr Pro Thr Cys Ala Thr Pro Ala Gly Pro Met Pro Cys Ser Arg Leu  
 20 25 30

Pro Pro Ser Leu Arg Cys Ser Leu His Ser Ala Cys Cys Ser Gly Asp  
 35 40 45

Pro Ala Ser Tyr Arg Leu Trp Gly Ala Pro Leu Gln Pro Thr Leu Gly  
 50 55 60

Val Val Pro Gln Ala Ser Val Pro Leu Leu Thr Asp Leu Ala Gln Trp  
 65 70 75 80

Glu Pro Val Leu Val Pro Glu Ala His Pro Asn Ala Ser Leu Thr Met  
 85 90 95

Tyr Val Cys Thr Pro Val Pro His Pro Asp Pro Pro Met Ala Leu Ser  
 100 105 110

Arg Thr Pro Thr Arg Gln Ile Ser Ser Ser Asp Thr Asp Pro Pro Ala  
 115 120 125

Asp Gly Pro Ser Asn Pro Leu Cys Cys Cys Phe His Gly Pro Ala Phe  
 130 135 140

Ser Thr Leu Asn Pro Val Leu Arg His Leu Phe Pro Gln Glu Ala Phe  
 145 150 155 160

Pro Ala His Pro Ile Tyr Asp Leu Ser Gln Val Trp Ser Val Val Ser  
 165 170 175

Pro Ala Pro Ser Arg Gly Gln Ala Leu Arg Arg Ala Gln  
 180 185

&lt;210&gt; 19

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

&lt;400&gt; 19

tgctgtgcta ctctgcaaa gccc

24

&lt;210&gt; 20

&lt;211&gt; 24

&lt;212&gt; DNA

$\langle 220 \rangle$ 

<400> 20

24

<210> 21

<211> 44

<212> DNA

<213> Artificial Sequence

 $\langle 220 \rangle$ 

<400> 21

44

<210> 22

$\langle 211 \rangle$  1200

<212> DNA

<213> Homo sapiens

<400> 22

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|-------------|------------|-------------|-------------|-------------|------------|------|
| ccccgcgctc  | cgaacctctc | cagcgatggg  | agccgcccgc  | ctgctgccc   | acctactct  | 60   |
| gtgcttacag  | ctgctgattc | tctgctgtca  | aactcagtac  | gtgagggacc  | agggcgccat | 120  |
| gaccgaccag  | ctgagcaggc | ggcagatccg  | cgagtaccaa  | ctctacagca  | ggaccagtgg | 180  |
| caagcacgtg  | caggtcaccg | ggcgctcgcat | ctccgccacc  | gccgaggacg  | gcaacaagtt | 240  |
| tgccaagctc  | atagtggaga | cggacacggt  | tggcagccgg  | gttcgcata   | aaggggctga | 300  |
| gagtgagaag  | tacatctgta | tgaacaagag  | gggcaagctc  | atcgggaagc  | ccagcgggaa | 360  |
| gagcaaaagc  | tgcgtgttca | cggagatcgt  | gctgagagaac | aactatacgg  | ccttcagaa  | 420  |
| cgcccgccac  | gagggctggt | tcatggcctt  | cacgcggcag  | gggcggcccc  | gccaggcttc | 480  |
| ccgcagccgc  | cagaaccagc | gcgagggcca  | cttcataaag  | cgccctacc   | aaggccagct | 540  |
| gcccttcccc  | aaccacgccg | agaagcagaa  | gcagttcgag  | tttgtgggct  | ccgccccac  | 600  |
| ccgcgggacc  | aagcgcacac | ggcgggcccc  | gcccctcacg  | tagtctggga  | ggcagggggc | 660  |
| agcagcccct  | gggcgcgctc | cccacccctt  | tcccttctta  | atccaaggac  | tgggctgggg | 720  |
| tggcggggagg | ggagccagat | ccccgaggga  | ggacctgag   | ggccgcgaag  | catccgagcc | 780  |
| cccagctggg  | aaggggcagg | ccggtgcccc  | aggggcggct  | ggcacagtgc  | ccccttcccg | 840  |
| gacgggtggc  | aggccctgga | gaggaactga  | gtgtcaccct  | gatctcaggc  | caccagcctc | 900  |
| tgccggcctc  | ccagccgggc | tctgaagcc   | cgctgaaagg  | tcagcgactg  | aaggccttgc | 960  |
| agacaaccgt  | ctggaggttg | ctgtcctcaa  | aatctgcttc  | tccgattctc  | ctcagctcgc | 1020 |
| ccccagcccc  | caaactctc  | ctggctagac  | tgtagggaagg | gacttttgtt  | tgtttgtttg | 1080 |
| tttcaggaaa  | aaagaaagg  | agagagagga  | aaatagagg   | ttgtccactc  | ctcacattcc | 1140 |
| acqacccaqq  | cctqcacccc | accccccaact | cccaqccccq  | qaataaaaacc | attttctctc | 1200 |

<210> 23

<211> 205

<212> PRT

<213> Homo sapiens

&lt;400&gt; 23

Met Gly Ala Ala Arg Leu Leu Pro Asn Leu Thr Leu Cys Leu Gln Leu  
 1 5 10 15

Leu Ile Leu Cys Cys Gln Thr Gln Tyr Val Arg Asp Gln Gly Ala Met  
 20 25 30

Thr Asp Gln Leu Ser Arg Arg Gln Ile Arg Glu Tyr Gln Leu Tyr Ser  
 35 40 45

Arg Thr Ser Gly Lys His Val Gln Val Thr Gly Arg Arg Ile Ser Ala  
 50 55 60

Thr Ala Glu Asp Gly Asn Lys Phe Ala Lys Leu Ile Val Glu Thr Asp  
 65 70 75 80

Thr Phe Gly Ser Arg Val Arg Ile Lys Gly Ala Glu Ser Glu Lys Tyr  
 85 90 95

Ile Cys Met Asn Lys Arg Gly Lys Leu Ile Gly Lys Pro Ser Gly Lys  
 100 105 110

Ser Lys Asp Cys Val Phe Thr Glu Ile Val Leu Glu Asn Asn Tyr Thr  
 115 120 125

Ala Phe Gln Asn Ala Arg His Glu Gly Trp Phe Met Ala Phe Thr Arg  
 130 135 140

Gln Gly Arg Pro Arg Gln Ala Ser Arg Ser Arg Gln Asn Gln Arg Glu  
 145 150 155 160

Ala His Phe Ile Lys Arg Leu Tyr Gln Gly Gln Leu Pro Phe Pro Asn  
 165 170 175

His Ala Glu Lys Gln Lys Gln Phe Glu Phe Val Gly Ser Ala Pro Thr  
 180 185 190

Arg Arg Thr Lys Arg Thr Arg Arg Pro Gln Pro Leu Thr  
 195 200 205

&lt;210&gt; 24

&lt;211&gt; 28

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

&lt;400&gt; 24

cagtacgtga gggaccaggg cgccatga

28

&lt;210&gt; 25

<211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 25  
 ccggtgacct gcacgtgctt gccca 24

<210> 26  
 <211> 41  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<220>  
 <221> modified\_base  
 <222> (21)  
 <223> a, t, c or g

<400> 26  
 gcggatctgc cgctgctca nctggctcgg catggcgccc t 41

<210> 27  
 <211> 2479  
 <212> DNA  
 <213> Homo sapiens

<400> 27  
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 ttaccatacg ccctcaggac gttccctcta gctggagttc tggacttcaa cagaacccca 180  
 tccagtcatt ttgattttgc tgtttatfff ttttttcttt ttctttttcc caccacattg 240  
 tattttatff cgtacttca gaaatgggccc tacagaccac aaagtggccc agccatgggg 300  
 cttttttcct gaagtcttgg cttatcattt ccctggggct ctactcacag gtgtccaaac 360  
 tccctggcctg ccctagtgtg tgccgctgcg acaggaactt tgtctactgt aatgagcgaa 420  
 gcttgacctc agtgccctct gggaacccgg agggcgtaac cgtactctac ctccacaaca 480  
 accaaattaa taatgctgga tttcctgcag aactgcacaa tgtacagtcg gtgcacacgg 540  
 tctacctgta tggcaaccaa ctggacgaat tccccatgaa ccttcccaag aatgtcagag 600  
 ttctccattt gcaggaaaac aatattcaga ccatttcacg ggctgctctt gccagctct 660  
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 gggccttccg ggaggctatt agcctcaaat tgttgttttt gtctaagaat cacctgagca 780  
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 atctgatcag gctctatttg caggacaacc agataaacca cattcctttg acagccttct 1080  
 caaatctgcy taagctggaa cggctggata tatccaacaa ccaactgcgg atgctgactc 1140

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aaggggtttt tgataatctc tccaacctga agcagctcac tgctcggaat aacccttggt 1200
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tctttgcttt ttaaattctt                                     2479

```

<210> 28

<211> 660

<212> PRT

<213> Homo sapiens

<400> 28

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Met Gly Leu Gln Thr Thr Lys Trp Pro Ser His Gly Ala Phe Phe Leu
  1              5              10              15

```

```

Lys Ser Trp Leu Ile Ile Ser Leu Gly Leu Tyr Ser Gln Val Ser Lys
      20              25              30

```

```

Leu Leu Ala Cys Pro Ser Val Cys Arg Cys Asp Arg Asn Phe Val Tyr
      35              40              45

```

```

Cys Asn Glu Arg Ser Leu Thr Ser Val Pro Leu Gly Ile Pro Glu Gly
      50              55              60

```

```

Val Thr Val Leu Tyr Leu His Asn Asn Gln Ile Asn Asn Ala Gly Phe
      65              70              75              80

```

```

Pro Ala Glu Leu His Asn Val Gln Ser Val His Thr Val Tyr Leu Tyr
      85              90              95

```

```

Gly Asn Gln Leu Asp Glu Phe Pro Met Asn Leu Pro Lys Asn Val Arg
      100             105             110

```

```

Val Leu His Leu Gln Glu Asn Asn Ile Gln Thr Ile Ser Arg Ala Ala
      115             120             125

```



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Gln | Leu | Leu | Lys | Leu | Glu | Glu | Leu | His | Leu | Asp | Asp | Asn | Ser |
| 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ile | Ser | Thr | Val | Gly | Val | Glu | Asp | Gly | Ala | Phe | Arg | Glu | Ala | Ile | Ser |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Lys | Leu | Leu | Phe | Leu | Ser | Lys | Asn | His | Leu | Ser | Ser | Val | Pro | Val |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Gly | Leu | Pro | Val | Asp | Leu | Gln | Glu | Leu | Arg | Val | Asp | Glu | Asn | Arg | Ile |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ala | Val | Ile | Ser | Asp | Met | Ala | Phe | Gln | Asn | Leu | Thr | Ser | Leu | Glu | Arg |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Leu | Ile | Val | Asp | Gly | Asn | Leu | Leu | Thr | Asn | Lys | Gly | Ile | Ala | Glu | Gly |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Thr | Phe | Ser | His | Leu | Thr | Lys | Leu | Lys | Glu | Phe | Ser | Ile | Val | Arg | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Leu | Ser | His | Pro | Pro | Pro | Asp | Leu | Pro | Gly | Thr | His | Leu | Ile | Arg |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Leu | Tyr | Leu | Gln | Asp | Asn | Gln | Ile | Asn | His | Ile | Pro | Leu | Thr | Ala | Phe |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ser | Asn | Leu | Arg | Lys | Leu | Glu | Arg | Leu | Asp | Ile | Ser | Asn | Asn | Gln | Leu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Arg | Met | Leu | Thr | Gln | Gly | Val | Phe | Asp | Asn | Leu | Ser | Asn | Leu | Lys | Gln |
| 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Leu | Thr | Ala | Arg | Asn | Asn | Pro | Trp | Phe | Cys | Asp | Cys | Ser | Ile | Lys | Trp |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     |     |     | 320 |
| Val | Thr | Glu | Trp | Leu | Lys | Tyr | Ile | Pro | Ser | Ser | Leu | Asn | Val | Arg | Gly |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Phe | Met | Cys | Gln | Gly | Pro | Glu | Gln | Val | Arg | Gly | Met | Ala | Val | Arg | Glu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Leu | Asn | Met | Asn | Leu | Leu | Ser | Cys | Pro | Thr | Thr | Thr | Pro | Gly | Leu | Pro |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Phe | Thr | Pro | Ala | Pro | Ser | Thr | Ala | Ser | Pro | Thr | Thr | Gln | Pro | Pro |
|     |     | 370 |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Thr | Leu | Ser | Ile | Pro | Asn | Pro | Ser | Arg | Ser | Tyr | Thr | Pro | Pro | Thr | Pro |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Thr | Thr | Ser | Lys | Leu | Pro | Thr | Ile | Pro | Asp | Trp | Asp | Gly | Arg | Glu | Arg |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |  |
| Val | Thr | Pro | Pro | Ile | Ser | Glu | Arg | Ile | Gln | Leu | Ser | Ile | His | Phe | Val |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Asn | Asp | Thr | Ser | Ile | Gln | Val | Ser | Trp | Leu | Ser | Leu | Phe | Thr | Val | Met |  |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |
| Ala | Tyr | Lys | Leu | Thr | Trp | Val | Lys | Met | Gly | His | Ser | Leu | Val | Gly | Gly |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Ile | Val | Gln | Glu | Arg | Ile | Val | Ser | Gly | Glu | Lys | Gln | His | Leu | Ser | Leu |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |
| Val | Asn | Leu | Glu | Pro | Arg | Ser | Thr | Tyr | Arg | Ile | Cys | Leu | Val | Pro | Leu |  |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |  |  |
| Asp | Ala | Phe | Asn | Tyr | Arg | Ala | Val | Glu | Asp | Thr | Ile | Cys | Ser | Glu | Ala |  |  |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Thr | Thr | His | Ala | Ser | Tyr | Leu | Asn | Asn | Gly | Ser | Asn | Thr | Ala | Ser | Ser |  |  |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |  |
| His | Glu | Gln | Thr | Thr | Ser | His | Ser | Met | Gly | Ser | Pro | Phe | Leu | Leu | Ala |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Gly | Leu | Ile | Gly | Gly | Ala | Val | Ile | Phe | Val | Leu | Val | Val | Leu | Leu | Ser |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |  |
| Val | Phe | Cys | Trp | His | Met | His | Lys | Lys | Gly | Arg | Tyr | Thr | Ser | Gln | Lys |  |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |  |
| Trp | Lys | Tyr | Asn | Arg | Gly | Arg | Arg | Lys | Asp | Asp | Tyr | Cys | Glu | Ala | Gly |  |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |
| Thr | Lys | Lys | Asp | Asn | Ser | Ile | Leu | Glu | Met | Thr | Glu | Thr | Ser | Phe | Gln |  |  |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |  |
| Ile | Val | Ser | Leu | Asn | Asn | Asp | Gln | Leu | Leu | Lys | Gly | Asp | Phe | Arg | Leu |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |  |
| Gln | Pro | Ile | Tyr | Thr | Pro | Asn | Gly | Gly | Ile | Asn | Tyr | Thr | Asp | Cys | His |  |  |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |  |  |
| Ile | Pro | Asn | Asn | Met | Arg | Tyr | Cys | Asn | Ser | Ser | Val | Pro | Asp | Leu | Glu |  |  |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |
| His | Cys | His | Thr |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
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ctgtagaaca ctggccatag gaaatgctgt tttttgtac tggactttac cttgatatat 3360  
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| Met | Glu | Lys | Met | Leu | Ala | Gly | Cys | Phe | Leu | Leu | Ile | Leu | Gly | Gln | Ile | 1   | 5   | 10  | 15  |
| Val | Leu | Leu | Pro | Ala | Glu | Ala | Arg | Glu | Arg | Ser | Arg | Gly | Arg | Ser | Ile | 20  | 25  | 30  |     |
| Ser | Arg | Gly | Arg | His | Ala | Arg | Thr | His | Pro | Gln | Thr | Ala | Leu | Leu | Glu | 35  | 40  | 45  |     |
| Ser | Ser | Cys | Glu | Asn | Lys | Arg | Ala | Asp | Leu | Val | Phe | Ile | Ile | Asp | Ser | 50  | 55  | 60  |     |
| Ser | Arg | Ser | Val | Asn | Thr | His | Asp | Tyr | Ala | Lys | Val | Lys | Glu | Phe | Ile | 65  | 70  | 75  | 80  |
| Val | Asp | Ile | Leu | Gln | Phe | Leu | Asp | Ile | Gly | Pro | Asp | Val | Thr | Arg | Val | 85  | 90  | 95  |     |
| Gly | Leu | Leu | Gln | Tyr | Gly | Ser | Thr | Val | Lys | Asn | Glu | Phe | Ser | Leu | Lys | 100 | 105 | 110 |     |
| Thr | Phe | Lys | Arg | Lys | Ser | Glu | Val | Glu | Arg | Ala | Val | Lys | Arg | Met | Arg | 115 | 120 | 125 |     |
| His | Leu | Ser | Thr | Gly | Thr | Met | Thr | Gly | Leu | Ala | Ile | Gln | Tyr | Ala | Leu | 130 | 135 | 140 |     |
| Asn | Ile | Ala | Phe | Ser | Glu | Ala | Glu | Gly | Ala | Arg | Pro | Leu | Arg | Glu | Asn | 145 | 150 | 155 | 160 |
| Val | Pro | Arg | Val | Ile | Met | Ile | Val | Thr | Asp | Gly | Arg | Pro | Gln | Asp | Ser | 165 | 170 | 175 |     |
| Val | Ala | Glu | Val | Ala | Ala | Lys | Ala | Arg | Asp | Thr | Gly | Ile | Leu | Ile | Phe | 180 | 185 | 190 |     |
| Ala | Ile | Gly | Val | Gly | Gln | Val | Asp | Phe | Asn | Thr | Leu | Lys | Ser | Ile | Gly | 195 | 200 | 205 |     |
| Ser | Glu | Pro | His | Glu | Asp | His | Val | Phe | Leu | Val | Ala | Asn | Phe | Ser | Gln | 210 | 215 | 220 |     |
| Ile | Glu | Thr | Leu | Thr | Ser | Val | Phe | Gln | Lys | Lys | Leu | Cys | Thr | Ala | His |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     | 240 |     |     |  |
| Met | Cys | Ser | Thr | Leu | Glu | His | Asn | Cys | Ala | His | Phe | Cys | Ile | Asn | Ile |  |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     | 255 |     |     |     |  |
| Pro | Gly | Ser | Tyr | Val | Cys | Arg | Cys | Lys | Gln | Gly | Tyr | Ile | Leu | Asn | Ser |  |
|     |     |     |     | 260 |     |     |     | 265 |     |     |     | 270 |     |     |     |  |
| Asp | Gln | Thr | Thr | Cys | Arg | Ile | Gln | Asp | Leu | Cys | Ala | Met | Glu | Asp | His |  |
|     |     |     |     | 275 |     |     |     | 280 |     |     |     | 285 |     |     |     |  |
| Asn | Cys | Glu | Gln | Leu | Cys | Val | Asn | Val | Pro | Gly | Ser | Phe | Val | Cys | Gln |  |
|     |     |     |     | 290 |     |     |     | 295 |     |     |     | 300 |     |     |     |  |
| Cys | Tyr | Ser | Gly | Tyr | Ala | Leu | Ala | Glu | Asp | Gly | Lys | Arg | Cys | Val | Ala |  |
| 305 |     |     |     |     | 310 |     |     |     | 315 |     |     |     | 320 |     |     |  |
| Val | Asp | Tyr | Cys | Ala | Ser | Glu | Asn | His | Gly | Cys | Glu | His | Glu | Cys | Val |  |
|     |     |     |     | 325 |     |     |     | 330 |     |     |     | 335 |     |     |     |  |
| Asn | Ala | Asp | Gly | Ser | Tyr | Leu | Cys | Gln | Cys | His | Glu | Gly | Phe | Ala | Leu |  |
|     |     |     |     | 340 |     |     |     | 345 |     |     |     | 350 |     |     |     |  |
| Asn | Pro | Asp | Glu | Lys | Thr | Cys | Thr | Arg | Ile | Asn | Tyr | Cys | Ala | Leu | Asn |  |
|     |     |     |     | 355 |     |     |     | 360 |     |     |     | 365 |     |     |     |  |
| Lys | Pro | Gly | Cys | Glu | His | Glu | Cys | Val | Asn | Met | Glu | Glu | Ser | Tyr | Tyr |  |
|     |     |     |     | 370 |     |     |     | 375 |     |     |     | 380 |     |     |     |  |
| Cys | Arg | Cys | His | Arg | Gly | Tyr | Thr | Leu | Asp | Pro | Asn | Gly | Lys | Thr | Cys |  |
| 385 |     |     |     |     | 390 |     |     |     | 395 |     |     |     | 400 |     |     |  |
| Ser | Arg | Val | Asp | His | Cys | Ala | Gln | Gln | Asp | His | Gly | Cys | Glu | Gln | Leu |  |
|     |     |     |     | 405 |     |     |     | 410 |     |     |     | 415 |     |     |     |  |
| Cys | Leu | Asn | Thr | Glu | Asp | Ser | Phe | Val | Cys | Gln | Cys | Ser | Glu | Gly | Phe |  |
|     |     |     |     | 420 |     |     |     | 425 |     |     |     | 430 |     |     |     |  |
| Leu | Ile | Asn | Glu | Asp | Leu | Lys | Thr | Cys | Ser | Arg | Val | Asp | Tyr | Cys | Leu |  |
|     |     |     |     | 435 |     |     |     | 440 |     |     |     | 445 |     |     |     |  |
| Leu | Ser | Asp | His | Gly | Cys | Glu | Tyr | Ser | Cys | Val | Asn | Met | Asp | Arg | Ser |  |
|     |     |     |     | 450 |     |     |     | 455 |     |     |     | 460 |     |     |     |  |
| Phe | Ala | Cys | Gln | Cys | Pro | Glu | Gly | His | Val | Leu | Arg | Ser | Asp | Gly | Lys |  |
| 465 |     |     |     |     | 470 |     |     |     | 475 |     |     |     | 480 |     |     |  |
| Thr | Cys | Ala | Lys | Leu | Asp | Ser | Cys | Ala | Leu | Gly | Asp | His | Gly | Cys | Glu |  |
|     |     |     |     | 485 |     |     |     | 490 |     |     |     | 495 |     |     |     |  |
| His | Ser | Cys | Val | Ser | Ser | Glu | Asp | Ser | Phe | Val | Cys | Gln | Cys | Phe | Glu |  |
|     |     |     |     | 500 |     |     |     | 505 |     |     |     | 510 |     |     |     |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gly | Tyr | Ile | Leu | Arg | Glu | Asp | Gly | Lys | Thr | Cys | Arg | Arg | Lys | Asp | Val |  |
|     |     | 515 |     |     |     |     |     | 520 |     |     |     |     |     | 525 |     |  |
| Cys | Gln | Ala | Ile | Asp | His | Gly | Cys | Glu | His | Ile | Cys | Val | Asn | Ser | Asp |  |
|     |     | 530 |     |     |     |     |     | 535 |     |     |     |     |     | 540 |     |  |
| Asp | Ser | Tyr | Thr | Cys | Glu | Cys | Leu | Glu | Gly | Phe | Arg | Leu | Ala | Glu | Asp |  |
|     |     | 545 |     |     |     |     |     | 550 |     |     |     |     |     | 560 |     |  |
| Gly | Lys | Arg | Cys | Arg | Arg | Lys | Asp | Val | Cys | Lys | Ser | Thr | His | His | Gly |  |
|     |     | 565 |     |     |     |     |     | 570 |     |     |     |     |     | 575 |     |  |
| Cys | Glu | His | Ile | Cys | Val | Asn | Asn | Gly | Asn | Ser | Tyr | Ile | Cys | Lys | Cys |  |
|     |     | 580 |     |     |     |     |     | 585 |     |     |     |     |     | 590 |     |  |
| Ser | Glu | Gly | Phe | Val | Leu | Ala | Glu | Asp | Gly | Arg | Arg | Cys | Lys | Lys | Cys |  |
|     |     | 595 |     |     |     |     |     | 600 |     |     |     |     |     | 605 |     |  |
| Thr | Glu | Gly | Pro | Ile | Asp | Leu | Val | Phe | Val | Ile | Asp | Gly | Ser | Lys | Ser |  |
|     |     | 610 |     |     |     |     |     | 615 |     |     |     |     |     | 620 |     |  |
| Leu | Gly | Glu | Glu | Asn | Phe | Glu | Val | Val | Lys | Gln | Phe | Val | Thr | Gly | Ile |  |
|     |     | 625 |     |     |     |     |     | 630 |     |     |     |     |     | 640 |     |  |
| Ile | Asp | Ser | Leu | Thr | Ile | Ser | Pro | Lys | Ala | Ala | Arg | Val | Gly | Leu | Leu |  |
|     |     | 645 |     |     |     |     |     | 650 |     |     |     |     |     | 655 |     |  |
| Gln | Tyr | Ser | Thr | Gln | Val | His | Thr | Glu | Phe | Thr | Leu | Arg | Asn | Phe | Asn |  |
|     |     | 660 |     |     |     |     |     | 665 |     |     |     |     |     | 670 |     |  |
| Ser | Ala | Lys | Asp | Met | Lys | Lys | Ala | Val | Ala | His | Met | Lys | Tyr | Met | Gly |  |
|     |     | 675 |     |     |     |     |     | 680 |     |     |     |     |     | 685 |     |  |
| Lys | Gly | Ser | Met | Thr | Gly | Leu | Ala | Leu | Lys | His | Met | Phe | Glu | Arg | Ser |  |
|     |     | 690 |     |     |     |     |     | 695 |     |     |     |     |     | 700 |     |  |
| Phe | Thr | Gln | Gly | Glu | Gly | Ala | Arg | Pro | Leu | Ser | Thr | Arg | Val | Pro | Arg |  |
|     |     | 705 |     |     |     |     |     | 710 |     |     |     |     |     | 720 |     |  |
| Ala | Ala | Ile | Val | Phe | Thr | Asp | Gly | Arg | Ala | Gln | Asp | Asp | Val | Ser | Glu |  |
|     |     | 725 |     |     |     |     |     | 730 |     |     |     |     |     | 735 |     |  |
| Trp | Ala | Ser | Lys | Ala | Lys | Ala | Asn | Gly | Ile | Thr | Met | Tyr | Ala | Val | Gly |  |
|     |     | 740 |     |     |     |     |     | 745 |     |     |     |     |     | 750 |     |  |
| Val | Gly | Lys | Ala | Ile | Glu | Glu | Glu | Leu | Gln | Glu | Ile | Ala | Ser | Glu | Pro |  |
|     |     | 755 |     |     |     |     |     | 760 |     |     |     |     |     | 765 |     |  |
| Thr | Asn | Lys | His | Leu | Phe | Tyr | Ala | Glu | Asp | Phe | Ser | Thr | Met | Asp | Glu |  |
|     |     | 770 |     |     |     |     |     | 775 |     |     |     |     |     | 780 |     |  |
| Ile | Ser | Glu | Lys | Leu | Lys | Lys | Gly | Ile | Cys | Glu | Ala | Leu | Glu | Asp | Ser |  |
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<220>

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23

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<211> 22

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

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22

<210> 37

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<212> DNA

<213> Artificial Sequence



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<223> Description of Artificial Sequence: Synthetic  
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45

&lt;210&gt; 38

&lt;211&gt; 1813

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 38

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1813

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&lt;210&gt; 39

&lt;211&gt; 390

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 39

Met Ile Ser Leu Pro Gly Pro Leu Val Thr Asn Leu Leu Arg Phe Leu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| 1   |     |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |  |  |  |
| Phe | Leu | Gly | Leu | Ser | Ala | Leu | Ala | Pro | Pro | Ser | Arg | Ala | Gln | Leu | Gln |  |  |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |  |  |
| Leu | His | Leu | Pro | Ala | Asn | Arg | Leu | Gln | Ala | Val | Glu | Gly | Gly | Glu | Val |  |  |  |  |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |  |  |  |  |
| Val | Leu | Pro | Ala | Trp | Tyr | Thr | Leu | His | Gly | Glu | Val | Ser | Ser | Ser | Gln |  |  |  |  |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |  |  |  |  |
| Pro | Trp | Glu | Val | Pro | Phe | Val | Met | Trp | Phe | Phe | Lys | Gln | Lys | Glu | Lys |  |  |  |  |
|     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |  |  |  |  |
| Glu | Asp | Gln | Val | Leu | Ser | Tyr | Ile | Asn | Gly | Val | Thr | Thr | Ser | Lys | Pro |  |  |  |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |  |  |
| Gly | Val | Ser | Leu | Val | Tyr | Ser | Met | Pro | Ser | Arg | Asn | Leu | Ser | Leu | Arg |  |  |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |  |  |
| Leu | Glu | Gly | Leu | Gln | Glu | Lys | Asp | Ser | Gly | Pro | Tyr | Ser | Cys | Ser | Val |  |  |  |  |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |  |  |  |  |
| Asn | Val | Gln | Asp | Lys | Gln | Gly | Lys | Ser | Arg | Gly | His | Ser | Ile | Lys | Thr |  |  |  |  |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |  |  |  |  |
| Leu | Glu | Leu | Asn | Val | Leu | Val | Pro | Pro | Ala | Pro | Pro | Ser | Cys | Arg | Leu |  |  |  |  |
|     |     |     | 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |  |  |  |  |
| Gln | Gly | Val | Pro | His | Val | Gly | Ala | Asn | Val | Thr | Leu | Ser | Cys | Gln | Ser |  |  |  |  |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |  |  |  |  |
| Pro | Arg | Ser | Lys | Pro | Ala | Val | Gln | Tyr | Gln | Trp | Asp | Arg | Gln | Leu | Pro |  |  |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |  |  |
| Ser | Phe | Gln | Thr | Phe | Phe | Ala | Pro | Ala | Leu | Asp | Val | Ile | Arg | Gly | Ser |  |  |  |  |
|     |     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |  |  |  |  |
| Leu | Ser | Leu | Thr | Asn | Leu | Ser | Ser | Ser | Met | Ala | Gly | Val | Tyr | Val | Cys |  |  |  |  |
|     |     |     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |  |  |  |  |
| Lys | Ala | His | Asn | Glu | Val | Gly | Thr | Ala | Gln | Cys | Asn | Val | Thr | Leu | Glu |  |  |  |  |
|     |     |     | 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |  |  |  |  |
| Val | Ser | Thr | Gly | Pro | Gly | Ala | Ala | Val | Val | Ala | Gly | Ala | Val | Val | Gly |  |  |  |  |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |  |  |  |  |
| Thr | Leu | Val | Gly | Leu | Gly | Leu | Leu | Ala | Gly | Leu | Val | Leu | Leu | Tyr | His |  |  |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |  |  |
| Arg | Arg | Gly | Lys | Ala | Leu | Glu | Glu | Pro | Ala | Asn | Asp | Ile | Lys | Glu | Asp |  |  |  |  |
|     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |  |  |  |  |

Ala Ile Ala Pro Arg Thr Leu Pro Trp Pro Lys Ser Ser Asp Thr Ile  
 290 295 300

Ser Lys Asn Gly Thr Leu Ser Ser Val Thr Ser Ala Arg Ala Leu Arg  
 305 310 315 320

Pro Pro His Gly Pro Pro Arg Pro Gly Ala Leu Thr Pro Thr Pro Ser  
 325 330 335

Leu Ser Ser Gln Ala Leu Pro Ser Pro Arg Leu Pro Thr Thr Asp Gly  
 340 345 350

Ala His Pro Gln Pro Ile Ser Pro Ile Pro Gly Gly Val Ser Ser Ser  
 355 360 365

Gly Leu Ser Arg Met Gly Ala Val Pro Val Met Val Pro Ala Gln Ser  
 370 375 380

Gln Ala Gly Ser Leu Val  
 385 390

<210> 40

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 40

agggtctcca ggagaaagac tc

22

<210> 41

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 41

attgtgggcc ttgcagacat agac

24

<210> 42

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 42  
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<210> 43  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 43  
 gtgtgacaca gcgtgggc 18

<210> 44  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 44  
 gaccggcagg cttctgcg 18

<210> 45  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 45  
 cagcagcttc agccaccagg agtgg 25

<210> 46  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 46  
 ctgagccgtg ggctgcagtc tcgc 24

<210> 47

<211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 47

ccgactacga ctggtttcttc atcatgcagg atgacacata tgtgc

45

<210> 48

<211> 2822

<212> DNA

<213> Homo sapiens

<400> 48

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agacttctgt ttgctaaatc tgtttctttt tctaattatc taaaaaaaaa aaaaagggtt 2760
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aa

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<210> 49

<211> 690

<212> PRT

<213> Homo sapiens

<400> 49

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Met Lys Arg Leu Pro Leu Leu Val Val Phe Ser Thr Leu Leu Asn Cys
  1                      5                      10                      15

```

```

Ser Tyr Thr Gln Asn Cys Thr Lys Thr Pro Cys Leu Pro Asn Ala Lys
          20                      25                      30

```

```

Cys Glu Ile Arg Asn Gly Ile Glu Ala Cys Tyr Cys Asn Met Gly Phe
          35                      40                      45

```

```

Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Asp Asn Glu Cys Gly Asn
          50                      55                      60

```

```

Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn Cys Thr Asn Thr Glu Gly
          65                      70                      75                      80

```

```

Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe Arg Ser Ser Ser Asn Gln
          85                      90                      95

```

```

Asp Arg Phe Ile Thr Asn Asp Gly Thr Val Cys Ile Glu Asn Val Asn
          100                      105                      110

```

```

Ala Asn Cys His Leu Asp Asn Val Cys Ile Ala Ala Asn Ile Asn Lys
          115                      120                      125

```

```

Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu Pro Val Ala Leu Leu Gln
          130                      135                      140

```

```

Glu Val Tyr Arg Asn Ser Val Thr Asp Leu Ser Pro Thr Asp Ile Ile
          145                      150                      155                      160

```

```

Thr Tyr Ile Glu Ile Leu Ala Glu Ser Ser Ser Leu Leu Gly Tyr Lys
          165                      170                      175

```

```

Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu Ser Asn Ser Thr Leu Thr

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 180 |     |     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |     |  |
| Glu | Phe | Val | Lys | Thr | Val | Asn | Asn | Phe | Val | Gln | Arg | Asp | Thr | Phe | Val |  |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |  |
| Val | Trp | Asp | Lys | Leu | Ser | Val | Asn | His | Arg | Arg | Thr | His | Leu | Thr | Lys |  |
|     |     | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |  |
| Leu | Met | His | Thr | Val | Glu | Gln | Ala | Thr | Leu | Arg | Ile | Ser | Gln | Ser | Phe |  |
|     |     | 225 |     |     | 230 |     |     |     |     |     | 235 |     | 240 |     |     |  |
| Gln | Lys | Thr | Thr | Glu | Phe | Asp | Thr | Asn | Ser | Thr | Asp | Ile | Ala | Leu | Lys |  |
|     |     |     |     | 245 |     |     |     |     |     | 250 |     |     |     | 255 |     |  |
| Val | Phe | Phe | Phe | Asp | Ser | Tyr | Asn | Met | Lys | His | Ile | His | Pro | His | Met |  |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     |     |     | 270 |     |  |
| Asn | Met | Asp | Gly | Asp | Tyr | Ile | Asn | Ile | Phe | Pro | Lys | Arg | Lys | Ala | Ala |  |
|     |     | 275 |     |     |     |     |     | 280 |     |     |     | 285 |     |     |     |  |
| Tyr | Asp | Ser | Asn | Gly | Asn | Val | Ala | Val | Ala | Phe | Leu | Tyr | Tyr | Lys | Ser |  |
|     |     | 290 |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |  |
| Ile | Gly | Pro | Leu | Leu | Ser | Ser | Ser | Asp | Asn | Phe | Leu | Leu | Lys | Pro | Gln |  |
|     |     | 305 |     |     |     | 310 |     |     |     | 315 |     |     |     | 320 |     |  |
| Asn | Tyr | Asp | Asn | Ser | Glu | Glu | Glu | Glu | Arg | Val | Ile | Ser | Ser | Val | Ile |  |
|     |     |     |     | 325 |     |     |     |     |     | 330 |     |     |     | 335 |     |  |
| Ser | Val | Ser | Met | Ser | Ser | Asn | Pro | Pro | Thr | Leu | Tyr | Glu | Leu | Glu | Lys |  |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     |     | 350 |     |  |
| Ile | Thr | Phe | Thr | Leu | Ser | His | Arg | Lys | Val | Thr | Asp | Arg | Tyr | Arg | Ser |  |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |  |
| Leu | Cys | Ala | Phe | Trp | Asn | Tyr | Ser | Pro | Asp | Thr | Met | Asn | Gly | Ser | Trp |  |
|     |     | 370 |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |  |
| Ser | Ser | Glu | Gly | Cys | Glu | Leu | Thr | Tyr | Ser | Asn | Glu | Thr | His | Thr | Ser |  |
|     |     | 385 |     |     |     | 390 |     |     |     | 395 |     |     |     | 400 |     |  |
| Cys | Arg | Cys | Asn | His | Leu | Thr | His | Phe | Ala | Ile | Leu | Met | Ser | Ser | Gly |  |
|     |     |     |     | 405 |     |     |     | 410 |     |     |     |     |     | 415 |     |  |
| Pro | Ser | Ile | Gly | Ile | Lys | Asp | Tyr | Asn | Ile | Leu | Thr | Arg | Ile | Thr | Gln |  |
|     |     | 420 |     |     |     |     |     | 425 |     |     |     |     |     | 430 |     |  |
| Leu | Gly | Ile | Ile | Ile | Ser | Leu | Ile | Cys | Leu | Ala | Ile | Cys | Ile | Phe | Thr |  |
|     |     | 435 |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |  |
| Phe | Trp | Phe | Phe | Ser | Glu | Ile | Gln | Ser | Thr | Arg | Thr | Thr | Ile | His | Lys |  |
|     |     | 450 |     |     |     | 455 |     |     |     |     |     | 460 |     |     |     |  |

Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu Val Gly  
 465 470 475 480  
 Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys Ser Ile Ile Ala Gly Leu  
 485 490 495  
 Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile Glu Gly  
 500 505 510  
 Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys Gly Phe  
 515 520 525  
 Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala Val Val  
 530 535 540  
 Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg Tyr Tyr Gly Thr Thr Lys  
 545 550 555 560  
 Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe Ile Gly  
 565 570 575  
 Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly Val Ile  
 580 585 590  
 Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu Val Ser  
 595 600 605  
 Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala Leu Leu  
 610 615 620  
 Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val Val His  
 625 630 635 640  
 Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala Phe Gln  
 645 650 655  
 Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys Ile Gln  
 660 665 670  
 Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe Gly Cys  
 675 680 685

Leu Arg  
 690

<210> 50  
 <211> 589  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> modified\_base  
 <222> (61)



<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 54

cgagctcgaa ttaattcg

18

<210> 55

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 55

ggatctcctg agtcagg

18

<210> 56

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 56

cctagttgag tgatccttgt aag

23

<210> 57

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 57

atgagacca cacctcatgc cgctgtaatc acctgacaca ttttgcaatt

50

<210> 58

<211> 2137

<212> DNA

<213> Homo sapiens

<400> 58

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cgctaagcga ggctcctcc tccgcagat ccgaacggcc tgggcggggt caccgccgct 120

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gggacaagaa gccgcccgcct gcctgcccgg gcccggggag ggggctgggg ctggggccgg 180
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gaggtttgtt ttgtatatta aaatggagtt tgtttgt 2137

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&lt;210&gt; 59

&lt;211&gt; 216

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 59

```

Met Arg Ser Gly Cys Val Val Val His Val Trp Ile Leu Ala Gly Leu
  1             5             10             15

```

```

Trp Leu Ala Val Ala Gly Arg Pro Leu Ala Phe Ser Asp Ala Gly Pro
      20             25             30

```

```

His Val His Tyr Gly Trp Gly Asp Pro Ile Arg Leu Arg His Leu Tyr
      35             40             45

```

```

Thr Ser Gly Pro His Gly Leu Ser Ser Cys Phe Leu Arg Ile Arg Ala
      50             55             60

```

Asp Gly Val Val Asp Cys Ala Arg Gly Gln Ser Ala His Ser Leu Leu  
 65 70 75 80  
 Glu Ile Lys Ala Val Ala Leu Arg Thr Val Ala Ile Lys Gly Val His  
 85 90 95  
 Ser Val Arg Tyr Leu Cys Met Gly Ala Asp Gly Lys Met Gln Gly Leu  
 100 105 110  
 Leu Gln Tyr Ser Glu Glu Asp Cys Ala Phe Glu Glu Glu Ile Arg Pro  
 115 120 125  
 Asp Gly Tyr Asn Val Tyr Arg Ser Glu Lys His Arg Leu Pro Val Ser  
 130 135 140  
 Leu Ser Ser Ala Lys Gln Arg Gln Leu Tyr Lys Asn Arg Gly Phe Leu  
 145 150 155 160  
 Pro Leu Ser His Phe Leu Pro Met Leu Pro Met Val Pro Glu Glu Pro  
 165 170 175  
 Glu Asp Leu Arg Gly His Leu Glu Ser Asp Met Phe Ser Ser Pro Leu  
 180 185 190  
 Glu Thr Asp Ser Met Asp Pro Phe Gly Leu Val Thr Gly Leu Glu Ala  
 195 200 205  
 Val Arg Ser Pro Ser Phe Glu Lys  
 210 215

&lt;210&gt; 60

&lt;211&gt; 26

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 60

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26

&lt;210&gt; 61

&lt;211&gt; 42

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 61

gcctcccgtg ctcctgagc agtgccaaac agcggcagtg ta

42

<210> 62  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 62  
 ccagtcggt gacaagccca aa 22

<210> 63  
 <211> 1295  
 <212> DNA  
 <213> Homo sapiens

<400> 63  
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 <212> PRT  
 <213> Homo sapiens

<400> 64

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Leu Val Val Ala Leu Gly Tyr His Lys Ala Tyr Gly Phe Ser Ala Pro  
 20 25 30

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Asp | Gln | Gln | Val | Val | Thr | Ala | Val | Glu | Tyr | Gln | Glu | Ala | Ile | Leu |
| 35  |     |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Ala | Cys | Lys | Thr | Pro | Lys | Lys | Thr | Val | Ser | Ser | Arg | Leu | Glu | Trp | Lys |
| 50  |     |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Lys | Leu | Gly | Arg | Ser | Val | Ser | Phe | Val | Tyr | Tyr | Gln | Gln | Thr | Leu | Gln |
| 65  |     |     |     | 70  |     |     |     |     |     | 75  |     |     |     | 80  |     |
| Gly | Asp | Phe | Lys | Asn | Arg | Ala | Glu | Met | Ile | Asp | Phe | Asn | Ile | Arg | Ile |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Lys | Asn | Val | Thr | Arg | Ser | Asp | Ala | Gly | Lys | Tyr | Arg | Cys | Glu | Val | Ser |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     | 110 |     |     |     |
| Ala | Pro | Ser | Glu | Gln | Gly | Gln | Asn | Leu | Glu | Glu | Asp | Thr | Val | Thr | Leu |
| 115 |     |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Glu | Val | Leu | Val | Ala | Pro | Ala | Val | Pro | Ser | Cys | Glu | Val | Pro | Ser | Ser |
| 130 |     |     |     |     |     | 135 |     |     |     | 140 |     |     |     |     |     |
| Ala | Leu | Ser | Gly | Thr | Val | Val | Glu | Leu | Arg | Cys | Gln | Asp | Lys | Glu | Gly |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     | 160 |     |
| Asn | Pro | Ala | Pro | Glu | Tyr | Thr | Trp | Phe | Lys | Asp | Gly | Ile | Arg | Leu | Leu |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Glu | Asn | Pro | Arg | Leu | Gly | Ser | Gln | Ser | Thr | Asn | Ser | Ser | Tyr | Thr | Met |
|     |     | 180 |     |     |     |     |     | 185 |     |     |     | 190 |     |     |     |
| Asn | Thr | Lys | Thr | Gly | Thr | Leu | Gln | Phe | Asn | Thr | Val | Ser | Lys | Leu | Asp |
| 195 |     |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Thr | Gly | Glu | Tyr | Ser | Cys | Glu | Ala | Arg | Asn | Ser | Val | Gly | Tyr | Arg | Arg |
| 210 |     |     |     |     |     | 215 |     |     |     | 220 |     |     |     |     |     |
| Cys | Pro | Gly | Lys | Arg | Met | Gln | Val | Asp | Asp | Leu | Asn | Ile | Ser | Gly | Ile |
| 225 |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Ile | Ala | Ala | Val | Val | Val | Val | Ala | Leu | Val | Ile | Ser | Val | Cys | Gly | Leu |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |
| Gly | Val | Cys | Tyr | Ala | Gln | Arg | Lys | Gly | Tyr | Phe | Ser | Lys | Glu | Thr | Ser |
|     |     | 260 |     |     |     |     |     | 265 |     |     |     | 270 |     |     |     |
| Phe | Gln | Lys | Ser | Asn | Ser | Ser | Ser | Lys | Ala | Thr | Thr | Met | Ser | Glu | Asn |
| 275 |     |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Val | Gln | Trp | Leu | Thr | Pro | Val | Ile | Pro | Ala | Leu | Trp | Lys | Ala | Ala | Ala |
| 290 |     |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |
| Gly | Gly | Ser | Arg | Gly | Gln | Glu | Phe |     |     |     |     |     |     |     |     |

305

310

&lt;210&gt; 65

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 65

atcggttgga agttagtggc cc

22

&lt;210&gt; 66

&lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 66

acctgcgata tccaacagaa ttg

23

&lt;210&gt; 67

&lt;211&gt; 48

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 67

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48

&lt;210&gt; 68

&lt;211&gt; 2639

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 68

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&lt;210&gt; 69

&lt;211&gt; 708

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 69

Met Lys Asp Met Pro Leu Arg Ile His Val Leu Leu Gly Leu Ala Ile  
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Thr Thr Leu Val Gln Ala Val Asp Lys Lys Val Asp Cys Pro Arg Leu  
20 25 30

Cys Thr Cys Glu Ile Arg Pro Trp Phe Thr Pro Arg Ser Ile Tyr Met  
35 40 45

Glu Ala Ser Thr Val Asp Cys Asn Asp Leu Gly Leu Leu Thr Phe Pro  
50 55 60



Ala Arg Leu Pro Ala Asn Thr Gln Ile Leu Leu Leu Gln Thr Asn Asn  
 65 70 75 80  
 Ile Ala Lys Ile Glu Tyr Ser Thr Asp Phe Pro Val Asn Leu Thr Gly  
 85 90 95  
 Leu Asp Leu Ser Gln Asn Asn Leu Ser Ser Val Thr Asn Ile Asn Val  
 100 105 110  
 Lys Lys Met Pro Gln Leu Leu Ser Val Tyr Leu Glu Glu Asn Lys Leu  
 115 120 125  
 Thr Glu Leu Pro Glu Lys Cys Leu Ser Glu Leu Ser Asn Leu Gln Glu  
 130 135 140  
 Leu Tyr Ile Asn His Asn Leu Leu Ser Thr Ile Ser Pro Gly Ala Phe  
 145 150 155 160  
 Ile Gly Leu His Asn Leu Leu Arg Leu His Leu Asn Ser Asn Arg Leu  
 165 170 175  
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 180 185 190  
 Leu Met Ile Gly Glu Asn Pro Ile Ile Arg Ile Lys Asp Met Asn Phe  
 195 200 205  
 Lys Pro Leu Ile Asn Leu Arg Ser Leu Val Ile Ala Gly Ile Asn Leu  
 210 215 220  
 Thr Glu Ile Pro Asp Asn Ala Leu Val Gly Leu Glu Asn Leu Glu Ser  
 225 230 235 240  
 Ile Ser Phe Tyr Asp Asn Arg Leu Ile Lys Val Pro His Val Ala Leu  
 245 250 255  
 Gln Lys Val Val Asn Leu Lys Phe Leu Asp Leu Asn Lys Asn Pro Ile  
 260 265 270  
 Asn Arg Ile Arg Arg Gly Asp Phe Ser Asn Met Leu His Leu Lys Glu  
 275 280 285  
 Leu Gly Ile Asn Asn Met Pro Glu Leu Ile Ser Ile Asp Ser Leu Ala  
 290 295 300  
 Val Asp Asn Leu Pro Asp Leu Arg Lys Ile Glu Ala Thr Asn Asn Pro  
 305 310 315 320  
 Arg Leu Ser Tyr Ile His Pro Asn Ala Phe Phe Arg Leu Pro Lys Leu  
 325 330 335  
 Glu Ser Leu Met Leu Asn Ser Asn Ala Leu Ser Ala Leu Tyr His Gly

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     |     |     | 340 |     |     |     | 345 |     |     |     | 350 |     |     |     |  |
| Thr | Ile | Glu | Ser | Leu | Pro | Asn | Leu | Lys | Glu | Ile | Ser | Ile | His | Ser | Asn |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
| Pro | Ile | Arg | Cys | Asp | Cys | Val | Ile | Arg | Trp | Met | Asn | Met | Asn | Lys | Thr |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
| Asn | Ile | Arg | Phe | Met | Glu | Pro | Asp | Ser | Leu | Phe | Cys | Val | Asp | Pro | Pro |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |
| Glu | Phe | Gln | Gly | Gln | Asn | Val | Arg | Gln | Val | His | Phe | Arg | Asp | Met | Met |  |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |  |
| Glu | Ile | Cys | Leu | Pro | Leu | Ile | Ala | Pro | Glu | Ser | Phe | Pro | Ser | Asn | Leu |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |
| Asn | Val | Glu | Ala | Gly | Ser | Tyr | Val | Ser | Phe | His | Cys | Arg | Ala | Thr | Ala |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |
| Glu | Pro | Gln | Pro | Glu | Ile | Tyr | Trp | Ile | Thr | Pro | Ser | Gly | Gln | Lys | Leu |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |
| Leu | Pro | Asn | Thr | Leu | Thr | Asp | Lys | Phe | Tyr | Val | His | Ser | Glu | Gly | Thr |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |
| Leu | Asp | Ile | Asn | Gly | Val | Thr | Pro | Lys | Glu | Gly | Gly | Leu | Tyr | Thr | Cys |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |  |
| Ile | Ala | Thr | Asn | Leu | Val | Gly | Ala | Asp | Leu | Lys | Ser | Val | Met | Ile | Lys |  |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |
| Val | Asp | Gly | Ser | Phe | Pro | Gln | Asp | Asn | Asn | Gly | Ser | Leu | Asn | Ile | Lys |  |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |
| Ile | Arg | Asp | Ile | Gln | Ala | Asn | Ser | Val | Leu | Val | Ser | Trp | Lys | Ala | Ser |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |
| Ser | Lys | Ile | Leu | Lys | Ser | Ser | Val | Lys | Trp | Thr | Ala | Phe | Val | Lys | Thr |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |
| Glu | Asn | Ser | His | Ala | Ala | Gln | Ser | Ala | Arg | Ile | Pro | Ser | Asp | Val | Lys |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |
| Val | Tyr | Asn | Leu | Thr | His | Leu | Asn | Pro | Ser | Thr | Glu | Tyr | Lys | Ile | Cys |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |
| Ile | Asp | Ile | Pro | Thr | Ile | Tyr | Gln | Lys | Asn | Arg | Lys | Lys | Cys | Val | Asn |  |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |
| Val | Thr | Thr | Lys | Gly | Leu | His | Pro | Asp | Gln | Lys | Glu | Tyr | Glu | Lys | Asn |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |

Asn Thr Thr Thr Leu Met Ala Cys Leu Gly Gly Leu Leu Gly Ile Ile  
625 630 635 640

Gly Val Ile Cys Leu Ile Ser Cys Leu Ser Pro Glu Met Asn Cys Asp  
645 650 655

Gly Gly His Ser Tyr Val Arg Asn Tyr Leu Gln Lys Pro Thr Phe Ala  
660 665 670

Leu Gly Glu Leu Tyr Pro Pro Leu Ile Asn Leu Trp Glu Ala Gly Lys  
675 680 685

Glu Lys Ser Thr Ser Leu Lys Val Lys Ala Thr Val Ile Gly Leu Pro  
690 695 700

Thr Asn Met Ser  
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<210> 70

<211> 1305

<212> DNA

<213> Homo sapiens

<400> 70

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<210> 71

<211> 259

<212> PRT

<213> Homo sapiens

<400> 71

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 Met Cys Pro Lys Gly Cys Leu Cys Ser Ser Ser Gly Gly Leu Asn Val  
 35 40 45  
 Thr Cys Ser Asn Ala Asn Leu Lys Glu Ile Pro Arg Asp Leu Pro Pro  
 50 55 60  
 Glu Thr Val Leu Leu Tyr Leu Asp Ser Asn Gln Ile Thr Ser Ile Pro  
 65 70 75 80  
 Asn Glu Ile Phe Lys Asp Leu His Gln Leu Arg Val Leu Asn Leu Ser  
 85 90 95  
 Lys Asn Gly Ile Glu Phe Ile Asp Glu His Ala Phe Lys Gly Val Ala  
 100 105 110  
 Glu Thr Leu Gln Thr Leu Asp Leu Ser Asp Asn Arg Ile Gln Ser Val  
 115 120 125  
 His Lys Asn Ala Phe Asn Asn Leu Lys Ala Arg Ala Arg Ile Ala Asn  
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 Ala Ser Asn His Glu Thr Ala His Asn Val Ile Cys Lys Thr Ser Val  
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 Ser Leu Pro Ser Arg Gln Lys Lys Ala Asp Glu Pro Asp Asp Ile Ser  
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&lt;210&gt; 72

&lt;211&gt; 2290

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 72

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aaaaaaaaa 2290

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&lt;210&gt; 73

&lt;211&gt; 620

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 73

Met Gln Val Ser Lys Arg Met Leu Ala Gly Gly Val Arg Ser Met Pro

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Ser Pro Leu Leu Ala Cys Trp Gln Pro Ile Leu Leu Leu Val Leu Gly  
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 Ser Val Leu Ser Gly Ser Ala Thr Gly Cys Pro Pro Arg Cys Glu Cys  
 35 40 45  
 Ser Ala Gln Asp Arg Ala Val Leu Cys His Arg Lys Cys Phe Val Ala  
 50 55 60  
 Val Pro Glu Gly Ile Pro Thr Glu Thr Arg Leu Leu Asp Leu Gly Lys  
 65 70 75 80  
 Asn Arg Ile Lys Thr Leu Asn Gln Asp Glu Phe Ala Ser Phe Pro His  
 85 90 95  
 Leu Glu Glu Leu Glu Leu Asn Glu Asn Ile Val Ser Ala Val Glu Pro  
 100 105 110  
 Gly Ala Phe Asn Asn Leu Phe Asn Leu Arg Thr Leu Gly Leu Arg Ser  
 115 120 125  
 Asn Arg Leu Lys Leu Ile Pro Leu Gly Val Phe Thr Gly Leu Ser Asn  
 130 135 140  
 Leu Thr Lys Gln Asp Ile Ser Glu Asn Lys Ile Val Ile Leu Leu Asp  
 145 150 155 160  
 Tyr Met Phe Gln Asp Leu Tyr Asn Leu Lys Ser Leu Glu Val Gly Asp  
 165 170 175  
 Asn Asp Leu Val Tyr Ile Ser His Arg Ala Phe Ser Gly Leu Asn Ser  
 180 185 190  
 Leu Glu Gln Leu Thr Leu Glu Lys Cys Asn Leu Thr Ser Ile Pro Thr  
 195 200 205  
 Glu Ala Leu Ser His Leu His Gly Leu Ile Val Leu Arg Leu Arg His  
 210 215 220  
 Leu Asn Ile Asn Ala Ile Arg Asp Tyr Ser Phe Lys Arg Leu Tyr Arg  
 225 230 235 240  
 Leu Lys Val Leu Glu Ile Ser His Trp Pro Tyr Leu Asp Thr Met Thr  
 245 250 255  
 Pro Asn Cys Leu Tyr Gly Leu Asn Leu Thr Ser Leu Ser Ile Thr His  
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 Cys Asn Leu Thr Ala Val Pro Tyr Leu Ala Val Arg His Leu Val Tyr  
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 Leu Arg Phe Leu Asn Leu Ser Tyr Asn Pro Ile Ser Thr Ile Glu Gly  
 290 295 300

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Ser Met Leu His Glu Leu Leu Arg Leu Gln Glu Ile Gln Leu Val Gly  
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 325 330 335  
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 340 345 350  
 Ser Val Phe His Ser Val Gly Asn Leu Glu Thr Leu Ile Leu Asp Ser  
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 370 375 380  
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 420 425 430  
 Gln Val Phe Val Asp Glu Gly His Thr Val Gln Phe Val Cys Arg Ala  
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 Asp Gly Asp Pro Pro Pro Ala Ile Leu Trp Leu Ser Pro Arg Lys His  
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 Thr Leu Glu Val Arg Tyr Ala Gln Val Gln Asp Asn Gly Thr Tyr Leu  
 485 490 495  
 Cys Ile Ala Ala Asn Ala Gly Gly Asn Asp Ser Met Pro Ala His Leu  
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 His Val Arg Ser Tyr Ser Pro Asp Trp Pro His Gln Pro Asn Lys Thr  
 515 520 525  
 Phe Ala Phe Ile Ser Asn Gln Pro Gly Glu Gly Glu Ala Asn Ser Thr  
 530 535 540  
 Arg Ala Thr Val Pro Phe Pro Phe Asp Ile Lys Thr Leu Ile Ile Ala  
 545 550 555 560  
 Thr Thr Met Gly Phe Ile Ser Phe Leu Gly Val Val Leu Phe Cys Leu  
 565 570 575  
 Val Leu Leu Phe Leu Trp Ser Arg Gly Lys Gly Asn Thr Lys His Asn

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 580 |     | 585 |     | 590 |     |     |     |     |     |     |     |     |     |     |
| Ile | Glu | Ile | Glu | Tyr | Val | Pro | Arg | Lys | Ser | Asp | Ala | Gly | Ile | Ser | Ser |
|     | 595 |     |     |     |     | 600 |     |     |     |     |     | 605 |     |     |     |
| Ala | Asp | Ala | Pro | Arg | Lys | Phe | Asn | Met | Lys | Met | Ile |     |     |     |     |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |

&lt;210&gt; 74

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 74

tcacctggag cctttattgg cc

22

&lt;210&gt; 75

&lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 75

ataccagcta taaccaggct gcg

23

&lt;210&gt; 76

&lt;211&gt; 52

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 76

caacagtaag tggtttgatg ctcttcctaaa tctagagatt ctgatgattg  
gg

50

52

&lt;210&gt; 77

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe



<400> 77  
 ccatgtgtct cctcctacaa ag 22

<210> 78  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 78  
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<210> 79  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

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<210> 80  
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 <212> DNA  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 80  
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<210> 81  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 81  
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<210> 82

<211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 82  
 gactacatgt ttcaggacct gtacaacctc aagtcactgg aggttggcga 50

<210> 83  
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 <212> DNA  
 <213> Homo sapiens

<400> 83  
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 agccagggag ccggccggga agcgcgatgg gggccccagc cgctctgctc ctgctcctgc 180  
 tctgtctgtt cgctctgctc tgggcgcccg gcggggccaa cctctcccag gacgacagcc 240  
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<210> 84  
 <211> 398  
 <212> PRT  
 <213> Homo sapiens

<400> 84

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met<br>1 | Gly | Ala | Pro | Ala | Ala | Ser | Leu | Leu | Leu | Leu | Leu | Leu | Leu | Phe | Ala |
|          |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Cys      | Cys | Trp | Ala | Pro | Gly | Gly | Ala | Asn | Leu | Ser | Gln | Asp | Asp | Ser | Gln |
|          |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Pro      | Trp | Thr | Ser | Asp | Glu | Thr | Val | Val | Ala | Gly | Gly | Thr | Val | Val | Leu |
|          |     |     |     | 35  |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys      | Cys | Gln | Val | Lys | Asp | His | Glu | Asp | Ser | Ser | Leu | Gln | Trp | Ser | Asn |
|          |     |     |     | 50  |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Pro      | Ala | Gln | Gln | Thr | Leu | Tyr | Phe | Gly | Glu | Lys | Arg | Ala | Leu | Arg | Asp |
|          |     |     |     | 65  |     | 70  |     |     |     | 75  |     |     |     |     | 80  |
| Asn      | Arg | Ile | Gln | Leu | Val | Thr | Ser | Thr | Pro | His | Glu | Leu | Ser | Ile | Ser |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile      | Ser | Asn | Val | Ala | Leu | Ala | Asp | Glu | Gly | Glu | Tyr | Thr | Cys | Ser | Ile |
|          |     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe      | Thr | Met | Pro | Val | Arg | Thr | Ala | Lys | Ser | Leu | Val | Thr | Val | Leu | Gly |
|          |     |     |     | 115 |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile      | Pro | Gln | Lys | Pro | Ile | Ile | Thr | Gly | Tyr | Lys | Ser | Ser | Leu | Arg | Glu |
|          |     |     |     | 130 |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Lys      | Asp | Thr | Ala | Thr | Leu | Asn | Cys | Gln | Ser | Ser | Gly | Ser | Lys | Pro | Ala |
|          |     |     |     | 145 |     | 150 |     |     |     | 155 |     |     |     | 160 |     |
| Ala      | Arg | Leu | Thr | Trp | Arg | Lys | Gly | Asp | Gln | Glu | Leu | His | Gly | Glu | Pro |
|          |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Thr      | Arg | Ile | Gln | Glu | Asp | Pro | Asn | Gly | Lys | Thr | Phe | Thr | Val | Ser | Ser |
|          |     |     |     | 180 |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ser      | Val | Thr | Phe | Gln | Val | Thr | Arg | Glu | Asp | Asp | Gly | Ala | Ser | Ile | Val |
|          |     |     |     | 195 |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Cys      | Ser | Val | Asn | His | Glu | Ser | Leu | Lys | Gly | Ala | Asp | Arg | Ser | Thr | Ser |
|          |     |     |     | 210 |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gln      | Arg | Ile | Glu | Val | Leu | Tyr | Thr | Pro | Thr | Ala | Met | Ile | Arg | Pro | Asp |
|          |     |     |     | 225 |     | 230 |     |     |     | 235 |     |     |     |     | 240 |
| Pro      | Pro | His | Pro | Arg | Glu | Gly | Gln | Lys | Leu | Leu | Leu | His | Cys | Glu | Gly |
|          |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg      | Gly | Asn | Pro | Val | Pro | Gln | Gln | Tyr | Leu | Trp | Glu | Lys | Glu | Gly | Ser |
|          |     |     |     | 260 |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Val      | Pro | Pro | Leu | Lys | Met | Thr | Gln | Glu | Ser | Ala | Leu | Ile | Phe | Pro | Phe |
|          |     |     |     | 275 |     |     | 280 |     |     |     |     | 285 |     |     |     |

Leu Asn Lys Ser Asp Ser Gly Thr Tyr Gly Cys Thr Ala Thr Ser Asn  
 290 295 300

Met Gly Ser Tyr Lys Ala Tyr Tyr Thr Leu Asn Val Asn Asp Pro Ser  
 305 310 315 320

Pro Val Pro Ser Ser Ser Ser Thr Tyr His Ala Ile Ile Gly Gly Ile  
 325 330 335

Val Ala Phe Ile Val Phe Leu Leu Leu Ile Met Leu Ile Phe Leu Gly  
 340 345 350

His Tyr Leu Ile Arg His Lys Gly Thr Tyr Leu Thr His Glu Ala Lys  
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Gly Ser Asp Asp Ala Pro Asp Ala Asp Thr Ala Ile Ile Asn Ala Glu  
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Gly Gly Gln Ser Gly Gly Asp Asp Lys Lys Glu Tyr Phe Ile  
 385 390 395

<210> 85

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 85

gctaggaatt ccacagaagc cc

22

<210> 86

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 86

aacctggaat gtcaccgagc tg

22

<210> 87

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

## oligonucleotide probe

&lt;400&gt; 87

cctagcacag tgacgaggga cttggc

26

&lt;210&gt; 88

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 88

aagacacagc caccctaaac tgtcagtctt ctgggagcaa gcctgcagcc

50

&lt;210&gt; 89

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 89

gccctggcag acgagggcga gtacacctgc tcaatcttca ctatgcctgt

50

&lt;210&gt; 90

&lt;211&gt; 2755

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 90

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```

<210> 91

<211> 696

<212> PRT

<213> Homo sapiens

<400> 91

```

Met Leu Leu Trp Ile Leu Leu Leu Glu Thr Ser Leu Cys Phe Ala Ala
  1             5             10            15

```

```

Gly Asn Val Thr Gly Asp Val Cys Lys Glu Lys Ile Cys Ser Cys Asn
      20            25            30

```

```

Glu Ile Glu Gly Asp Leu His Val Asp Cys Glu Lys Lys Gly Phe Thr
      35            40            45

```

```

Ser Leu Gln Arg Phe Thr Ala Pro Thr Ser Gln Phe Tyr His Leu Phe
      50            55            60

```

```

Leu His Gly Asn Ser Leu Thr Arg Leu Phe Pro Asn Glu Phe Ala Asn
      65            70            75            80

```

```

Phe Tyr Asn Ala Val Ser Leu His Met Glu Asn Asn Gly Leu His Glu
      85            90            95

```

Ile Val Pro Gly Ala Phe Leu Gly Leu Gln Leu Val Lys Arg Leu His  
 100 105 110  
 Ile Asn Asn Asn Lys Ile Lys Ser Phe Arg Lys Gln Thr Phe Leu Gly  
 115 120 125  
 Leu Asp Asp Leu Glu Tyr Leu Gln Ala Asp Phe Asn Leu Leu Arg Asp  
 130 135 140  
 Ile Asp Pro Gly Ala Phe Gln Asp Leu Asn Lys Leu Glu Val Leu Ile  
 145 150 155 160  
 Leu Asn Asp Asn Leu Ile Ser Thr Leu Pro Ala Asn Val Phe Gln Tyr  
 165 170 175  
 Val Pro Ile Thr His Leu Asp Leu Arg Gly Asn Arg Leu Lys Thr Leu  
 180 185 190  
 Pro Tyr Glu Glu Val Leu Glu Gln Ile Pro Gly Ile Ala Glu Ile Leu  
 195 200 205  
 Leu Glu Asp Asn Pro Trp Asp Cys Thr Cys Asp Leu Leu Ser Leu Lys  
 210 215 220  
 Glu Trp Leu Glu Asn Ile Pro Lys Asn Ala Leu Ile Gly Arg Val Val  
 225 230 235 240  
 Cys Glu Ala Pro Thr Arg Leu Gln Gly Lys Asp Leu Asn Glu Thr Thr  
 245 250 255  
 Glu Gln Asp Leu Cys Pro Leu Lys Asn Arg Val Asp Ser Ser Leu Pro  
 260 265 270  
 Ala Pro Pro Ala Gln Glu Glu Thr Phe Ala Pro Gly Pro Leu Pro Thr  
 275 280 285  
 Pro Phe Lys Thr Asn Gly Gln Glu Asp His Ala Thr Pro Gly Ser Ala  
 290 295 300  
 Pro Asn Gly Gly Thr Lys Ile Pro Gly Asn Trp Gln Ile Lys Ile Arg  
 305 310 315 320  
 Pro Thr Ala Ala Ile Ala Thr Gly Ser Ser Arg Asn Lys Pro Leu Ala  
 325 330 335  
 Asn Ser Leu Pro Cys Pro Gly Gly Cys Ser Cys Asp His Ile Pro Gly  
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 Ser Gly Leu Lys Met Asn Cys Asn Asn Arg Asn Val Ser Ser Leu Ala  
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 Asp Leu Lys Pro Lys Leu Ser Asn Val Gln Glu Leu Phe Leu Arg Asp  
 370 375 380

Asn Lys Ile His Ser Ile Arg Lys Ser His Phe Val Asp Tyr Lys Asn  
 385 390 395 400  
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 405 410 415  
 Asn Thr Phe Lys Asn Leu Leu Asp Leu Arg Trp Leu Tyr Met Asp Ser  
 420 425 430  
 Asn Tyr Leu Asp Thr Leu Ser Arg Glu Lys Phe Ala Gly Leu Gln Asn  
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 Leu Glu Tyr Leu Asn Val Glu Tyr Asn Ala Ile Gln Leu Ile Leu Pro  
 450 455 460  
 Gly Thr Phe Asn Ala Met Pro Lys Leu Arg Ile Leu Ile Leu Asn Asn  
 465 470 475 480  
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 485 490 495  
 Ser Lys Leu Ser Leu His Asn Asn Tyr Phe Met Tyr Leu Pro Val Ala  
 500 505 510  
 Gly Val Leu Asp Gln Leu Thr Ser Ile Ile Gln Ile Asp Leu His Gly  
 515 520 525  
 Asn Pro Trp Glu Cys Ser Cys Thr Ile Val Pro Phe Lys Gln Trp Ala  
 530 535 540  
 Glu Arg Leu Gly Ser Glu Val Leu Met Ser Asp Leu Lys Cys Glu Thr  
 545 550 555 560  
 Pro Val Asn Phe Phe Arg Lys Asp Phe Met Leu Leu Ser Asn Asp Glu  
 565 570 575  
 Ile Cys Pro Gln Leu Tyr Ala Arg Ile Ser Pro Thr Leu Thr Ser His  
 580 585 590  
 Ser Lys Asn Ser Thr Gly Leu Ala Glu Thr Gly Thr His Ser Asn Ser  
 595 600 605  
 Tyr Leu Asp Thr Ser Arg Val Ser Ile Ser Val Leu Val Pro Gly Leu  
 610 615 620  
 Leu Leu Val Phe Val Thr Ser Ala Phe Thr Val Val Gly Met Leu Val  
 625 630 635 640  
 Phe Ile Leu Arg Asn Arg Lys Arg Ser Lys Arg Arg Asp Ala Asn Ser  
 645 650 655  
 Ser Ala Ser Glu Ile Asn Ser Leu Gln Thr Val Cys Asp Ser Ser Tyr



660 665 670

Trp His Asn Gly Pro Tyr Asn Ala Asp Gly Ala His Arg Val Tyr Asp  
675 680 685

Cys Gly Ser His Ser Leu Ser Asp  
690 695

<210> 92  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 92  
gttgatctg ggcaacaata ac 22

<210> 93  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 93  
attgttgtgc aggctgagtt taag 24

<210> 94  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 94  
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<210> 95  
<211> 2226  
<212> DNA  
<213> Homo sapiens

<400> 95  
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tgccgctgg gcccgcgggg ggattcttgg cagttggggg gtccgtcggg agcgagggcg 180

gaggggaagg gagggggaac cgggttgggg aagccagctg tagagggcgg tgaccgcgct 240  
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 ggagaatttg gagaagtgat tgaacttttc aagacattgg aaacaaatag aacacaatat 2100  
 aatttacatt aaaaaataat ttctaccaa atggaaagga aatgttctat gttgttcagg 2160  
 ctaggagtat attggttcga aatcccaggg aaaaaataa aaataaaaaa ttaaaggatt 2220  
 gttgat 2226

&lt;210&gt; 96

&lt;211&gt; 490

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 96

Met Arg Pro Ala Phe Ala Leu Cys Leu Leu Trp Gln Ala Leu Trp Pro  
 1 5 10 15

Gly Pro Gly Gly Gly Glu His Pro Thr Ala Asp Arg Ala Gly Cys Ser  
 20 25 30

Ala Ser Gly Ala Cys Tyr Ser Leu His His Ala Thr Met Lys Arg Gln  
 35 40 45

Ala Ala Glu Glu Ala Cys Ile Leu Arg Gly Gly Ala Leu Ser Thr Val  
 50 55 60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ala | Gly | Ala | Glu | Leu | Arg | Ala | Val | Leu | Ala | Leu | Leu | Arg | Ala | Gly | 65  | 70  | 75  | 80  |
| Pro | Gly | Pro | Gly | Gly | Gly | Ser | Lys | Asp | Leu | Leu | Phe | Trp | Val | Ala | Leu | 85  | 90  | 95  |     |
| Glu | Arg | Arg | Arg | Ser | His | Cys | Thr | Leu | Glu | Asn | Glu | Pro | Leu | Arg | Gly | 100 | 105 | 110 |     |
| Phe | Ser | Trp | Leu | Ser | Ser | Asp | Pro | Gly | Gly | Leu | Glu | Ser | Asp | Thr | Leu | 115 | 120 | 125 |     |
| Gln | Trp | Val | Glu | Glu | Pro | Gln | Arg | Ser | Cys | Thr | Ala | Arg | Arg | Cys | Ala | 130 | 135 | 140 |     |
| Val | Leu | Gln | Ala | Thr | Gly | Gly | Val | Glu | Pro | Ala | Gly | Trp | Lys | Glu | Met | 145 | 150 | 155 | 160 |
| Arg | Cys | His | Leu | Arg | Ala | Asn | Gly | Tyr | Leu | Cys | Lys | Tyr | Gln | Phe | Glu | 165 | 170 | 175 |     |
| Val | Leu | Cys | Pro | Ala | Pro | Arg | Pro | Gly | Ala | Ala | Ser | Asn | Leu | Ser | Tyr | 180 | 185 | 190 |     |
| Arg | Ala | Pro | Phe | Gln | Leu | His | Ser | Ala | Ala | Leu | Asp | Phe | Ser | Pro | Pro | 195 | 200 | 205 |     |
| Gly | Thr | Glu | Val | Ser | Ala | Leu | Cys | Arg | Gly | Gln | Leu | Pro | Ile | Ser | Val | 210 | 215 | 220 |     |
| Thr | Cys | Ile | Ala | Asp | Glu | Ile | Gly | Ala | Arg | Trp | Asp | Lys | Leu | Ser | Gly | 225 | 230 | 235 | 240 |
| Asp | Val | Leu | Cys | Pro | Cys | Pro | Gly | Arg | Tyr | Leu | Arg | Ala | Gly | Lys | Cys | 245 | 250 | 255 |     |
| Ala | Glu | Leu | Pro | Asn | Cys | Leu | Asp | Asp | Leu | Gly | Gly | Phe | Ala | Cys | Glu | 260 | 265 | 270 |     |
| Cys | Ala | Thr | Gly | Phe | Glu | Leu | Gly | Lys | Asp | Gly | Arg | Ser | Cys | Val | Thr | 275 | 280 | 285 |     |
| Ser | Gly | Glu | Gly | Gln | Pro | Thr | Leu | Gly | Gly | Thr | Gly | Val | Pro | Thr | Arg | 290 | 295 | 300 |     |
| Arg | Pro | Pro | Ala | Thr | Ala | Thr | Ser | Pro | Val | Pro | Gln | Arg | Thr | Trp | Pro | 305 | 310 | 315 | 320 |
| Ile | Arg | Val | Asp | Glu | Lys | Leu | Gly | Glu | Thr | Pro | Leu | Val | Pro | Glu | Gln | 325 | 330 | 335 |     |
| Asp | Asn | Ser | Val | Thr | Ser | Ile | Pro | Glu | Ile | Pro | Arg | Trp | Gly | Ser | Gln |     |     |     |     |

11-20-60

|             |                             |                         |             |  |     |
|-------------|-----------------------------|-------------------------|-------------|--|-----|
|             | 340                         |                         | 345         |  | 350 |
| Ser Thr Met | Ser Thr Leu Gln Met         | Ser Leu Gln Ala Glu     | Ser Lys Ala |  |     |
| 355         | 360                         | 365                     |             |  |     |
| Thr Ile Thr | Pro Ser Gly Ser Val         | Ile Ser Lys Phe Asn     | Ser Thr Thr |  |     |
| 370         | 375                         | 380                     |             |  |     |
| Ser Ser Ala | Thr Pro Gln Ala Phe Asp     | Ser Ser Ser Ala Val Val | Phe         |  |     |
| 385         | 390                         | 395                     | 400         |  |     |
| Ile Phe Val | Ser Thr Ala Val Val Val     | Leu Val Ile Leu Thr     | Met Thr     |  |     |
|             | 405                         | 410                     | 415         |  |     |
| Val Leu Gly | Leu Val Lys Leu Cys Phe His | Glu Ser Pro Ser Ser     | Gln         |  |     |
|             | 420                         | 425                     | 430         |  |     |
| Pro Arg Lys | Glu Ser Met Gly Pro Pro     | Gly Leu Glu Ser Asp     | Pro Glu     |  |     |
|             | 435                         | 440                     | 445         |  |     |
| Pro Ala Ala | Leu Gly Ser Ser Ser Ala His | Cys Thr Asn Asn Gly     | Val         |  |     |
|             | 450                         | 455                     | 460         |  |     |
| Lys Val Gly | Asp Cys Asp Leu Arg Asp Arg | Ala Glu Gly Ala Leu Leu |             |  |     |
| 465         | 470                         | 475                     | 480         |  |     |
| Ala Glu Ser | Pro Leu Gly Ser Ser Asp     | Ala                     |             |  |     |
|             | 485                         | 490                     |             |  |     |

&lt;210&gt; 97

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic oligonucleotide probe

&lt;400&gt; 97

tggaaggaga tgcatgccca cctg

24

&lt;210&gt; 98

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic oligonucleotide probe

&lt;400&gt; 98

tgaccagtgg ggaaggacag

20

<210> 99  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe  
  
 <400> 99  
 acagagcaga gggcgccttg 20  
  
 <210> 100  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe  
  
 <400> 100  
 tcaggacaa gtggtgtctc tccc 24  
  
 <210> 101  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe  
  
 <400> 101  
 tcagggaagg agtgtgcagt tctg 24  
  
 <210> 102  
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 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe  
  
 <400> 102  
 acagctcccg atctcagtta cttgcatcgc ggacgaaatc ggcgctcgct 50  
  
 <210> 103  
 <211> 2026  
 <212> DNA  
 <213> Homo sapiens

&lt;400&gt; 103

```

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tatcccccg ctacctgggc cgccccgcgg cggtgcgcgc gtgagagggg gcgcgcgggc 180
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gtgttatttg tttcaccttc aagcctttgc cctgaggtgt tacaatcttg tcttgcgttt 1980
tctaaatcaa tgcttaataa aatattttta aaggaaaaaa aaaaaa 2026

```

&lt;210&gt; 104

&lt;211&gt; 415

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 104

```

Met Arg Gly Ala Asn Ala Trp Ala Pro Leu Cys Leu Leu Leu Ala Ala
  1                      5                      10                     15

```

```

Ala Thr Gln Leu Ser Arg Gln Gln Ser Pro Glu Arg Pro Val Phe Thr
      20                      25                      30

```

```

Cys Gly Gly Ile Leu Thr Gly Glu Ser Gly Phe Ile Gly Ser Glu Gly
      35                      40                      45

```

```

Phe Pro Gly Val Tyr Pro Pro Asn Ser Lys Cys Thr Trp Lys Ile Thr
      50                      55                      60

```



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 340 |     | 345 |     | 350 |     |     |     |     |     |     |     |     |     |     |
| Gly | Lys | Asn | Met | Ser | Ala | Arg | Leu | Thr | Val | Val | Cys | Lys | Gln | Cys | Pro |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Leu | Arg | Arg | Gly | Leu | Asn | Tyr | Ile | Ile | Met | Gly | Gln | Val | Gly | Glu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asp | Gly | Arg | Gly | Lys | Ile | Met | Pro | Asn | Ser | Phe | Ile | Met | Met | Phe | Lys |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Thr | Lys | Asn | Gln | Lys | Leu | Leu | Asp | Ala | Leu | Lys | Asn | Lys | Gln | Cys |     |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     | 415 |     |     |

&lt;210&gt; 105

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 105

ccgattcata gacctcgaga gt

22

&lt;210&gt; 106

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 106

gtcaaggagt cctccacaat ac

22

&lt;210&gt; 107

&lt;211&gt; 45

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 107

gtgtacaatg gccatgccaa tggccagcgc attggccgct tctgt

45

&lt;210&gt; 108

&lt;211&gt; 1838

&lt;212&gt; DNA



<213> Homo sapiens

<400> 108

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cggacgcgtg ggcggacgcg tgggcggccc acggcgcccc cgggctgggg cggtcgcttc 60
ttccttctcc gtggcctacg aggggtcccca gcctgggtaa agatggcccc atggcccccg 120
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```

<210> 109

<211> 420

<212> PRT

<213> Homo sapiens

<400> 109

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Met Ala Pro Trp Pro Pro Lys Gly Leu Val Pro Ala Val Leu Trp Gly
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Leu Ser Leu Phe Leu Asn Leu Pro Gly Pro Ile Trp Leu Gln Pro Ser
  20             25             30

Pro Pro Pro Gln Ser Ser Pro Pro Pro Gln Pro His Pro Cys His Thr
  35             40             45

Cys Arg Gly Leu Val Asp Ser Phe Asn Lys Gly Leu Glu Arg Thr Ile
  50             55             60

```

|            |            |            |            |            |            |            |            |            |            |            |            |            |            |           |            |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|
| Arg<br>65  | Asp        | Asn        | Phe        | Gly        | Gly<br>70  | Gly        | Asn        | Thr        | Ala        | Trp<br>75  | Glu        | Glu        | Glu        | Asn       | Leu<br>80  |
| Ser        | Lys        | Tyr        | Lys        | Asp<br>85  | Ser        | Glu        | Thr        | Arg        | Leu<br>90  | Val        | Glu        | Val        | Leu        | Glu<br>95 | Gly        |
| Val        | Cys        | Ser        | Lys<br>100 | Ser        | Asp        | Phe        | Glu        | Cys        | His<br>105 | Arg        | Leu        | Leu        | Glu<br>110 | Leu       | Ser        |
| Glu        | Glu        | Leu<br>115 | Val        | Glu        | Ser        | Trp        | Trp<br>120 | Phe        | His        | Lys        | Gln        | Gln<br>125 | Glu        | Ala       | Pro        |
| Asp        | Leu<br>130 | Phe        | Gln        | Trp        | Leu        | Cys<br>135 | Ser        | Asp        | Ser        | Leu        | Lys<br>140 | Leu        | Cys        | Cys       | Pro        |
| Ala<br>145 | Gly        | Thr        | Phe        | Gly        | Pro<br>150 | Ser        | Cys        | Leu        | Pro        | Cys<br>155 | Pro        | Gly        | Gly        | Thr       | Glu<br>160 |
| Arg        | Pro        | Cys        | Gly<br>165 | Gly        | Tyr        | Gly        | Gln        | Cys        | Glu<br>170 | Gly        | Glu        | Gly        | Thr<br>175 | Arg       | Gly        |
| Gly        | Ser        | Gly        | His<br>180 | Cys        | Asp        | Cys        | Gln        | Ala<br>185 | Gly        | Tyr        | Gly        | Gly        | Glu<br>190 | Ala       | Cys        |
| Gly        | Gln<br>195 | Cys        | Gly        | Leu        | Gly        | Tyr        | Phe<br>200 | Glu        | Ala        | Glu        | Arg        | Asn<br>205 | Ala        | Ser       | His        |
| Leu<br>210 | Val        | Cys        | Ser        | Ala        | Cys        | Phe<br>215 | Gly        | Pro        | Cys        | Ala        | Arg<br>220 | Cys        | Ser        | Gly       | Pro        |
| Glu<br>225 | Glu        | Ser        | Asn        | Cys<br>230 | Leu        | Gln        | Cys        | Lys        | Lys        | Gly<br>235 | Trp        | Ala        | Leu        | His       | His<br>240 |
| Leu        | Lys        | Cys        | Val<br>245 | Asp        | Ile        | Asp        | Glu        | Cys        | Gly<br>250 | Thr        | Glu        | Gly        | Ala<br>255 | Asn       | Cys        |
| Gly        | Ala        | Asp<br>260 | Gln        | Phe        | Cys        | Val        | Asn<br>265 | Thr        | Glu        | Gly        | Ser        | Tyr<br>270 | Glu        | Cys       | Arg        |
| Asp        | Cys<br>275 | Ala        | Lys        | Ala        | Cys        | Leu        | Gly<br>280 | Cys        | Met        | Gly        | Ala        | Gly<br>285 | Pro        | Gly       | Arg        |
| Cys<br>290 | Lys        | Lys        | Cys        | Ser        | Pro        | Gly<br>295 | Tyr        | Gln        | Gln        | Val        | Gly<br>300 | Ser        | Lys        | Cys       | Leu        |
| Asp<br>305 | Val        | Asp        | Glu        | Cys<br>310 | Glu        | Thr        | Glu        | Val        | Cys        | Pro<br>315 | Gly        | Glu        | Asn        | Lys       | Gln        |
| Cys        | Glu        | Asn        | Thr<br>325 | Glu        | Gly        | Gly        | Tyr        | Arg        | Cys<br>330 | Ile        | Cys        | Ala        | Glu<br>335 | Gly       | Tyr        |
| Lys        | Gln        | Met<br>340 | Glu        | Gly        | Ile        | Cys        | Val<br>345 | Lys        | Glu        | Gln        | Ile<br>350 | Pro        | Glu        | Ser       | Ala        |

Gly Phe Phe Ser Glu Met Thr Glu Asp Glu Leu Val Val Leu Gln Gln  
           355                                  360                                  365  
 Met Phe Phe Gly Ile Ile Ile Cys Ala Leu Ala Thr Leu Ala Ala Lys  
       370                                  375                                  380  
 Gly Asp Leu Val Phe Thr Ala Ile Phe Ile Gly Ala Val Ala Ala Met  
 385                                  390                                  395                                  400  
 Thr Gly Tyr Trp Leu Ser Glu Arg Ser Asp Arg Val Leu Glu Gly Phe  
                                   405                                  410                                  415  
 Ile Lys Gly Arg  
                                   420

<210> 110

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 110

cctggctatc agcaggtggg ctccaagtgt ctcgatgtgg atgagtgtga

50

<210> 111

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 111

attctgcgtg aacactgagg gc

22

<210> 112

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 112

atctgcttgt agccctcggc ac

22

<210> 113

<211> 1616  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> modified\_base  
 <222> (1461)  
 <223> a, t, c or g

<400> 113  
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 cggggccgcc ctgaccgggg agcagctcct gggcagcctg ctgcggcagc tgcagctcaa 180  
 agaggtgccc accctggaca gggccgacat ggaggagctg gtcaccccca cccacgtgag 240  
 ggcccagtag gtggccctgc tgcagcgcag ccacggggac cgctcccgcg gaaagaggtt 300  
 cagccagagc ttccgagagg tggccggcag gttcctggcg ttggaggcca gcacacacct 360  
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 ccgcacctcc ctcatcgact ccaggctggt gtccgtccac gagagcggct ggaaggcctt 600  
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 aaagtcctcc accaccactc tggacctaag acctggggtt aagtgtgggt tgtgcacccc 1560  
 caatccagat aataaagact ttgtaaaaca tgaataaaac acattttatt ctaaaa 1616

<210> 114  
 <211> 366  
 <212> PRT  
 <213> Homo sapiens

<400> 114  
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 Ser Pro Gly Ala Ala Leu Thr Gly Glu Gln Leu Leu Gly Ser Leu Leu  
 20 25 30  
 Arg Gln Leu Gln Leu Lys Glu Val Pro Thr Leu Asp Arg Ala Asp Met  
 35 40 45

Glu Glu Leu Val Ile Pro Thr His Val Arg Ala Gln Tyr Val Ala Leu  
 50 55 60  
 Leu Gln Arg Ser His Gly Asp Arg Ser Arg Gly Lys Arg Phe Ser Gln  
 65 70 75 80  
 Ser Phe Arg Glu Val Ala Gly Arg Phe Leu Ala Leu Glu Ala Ser Thr  
 85 90 95  
 His Leu Leu Val Phe Gly Met Glu Gln Arg Leu Pro Pro Asn Ser Glu  
 100 105 110  
 Leu Val Gln Ala Val Leu Arg Leu Phe Gln Glu Pro Val Pro Lys Ala  
 115 120 125  
 Ala Leu His Arg His Gly Arg Leu Ser Pro Arg Ser Ala Arg Ala Arg  
 130 135 140  
 Val Thr Val Glu Trp Leu Arg Val Arg Asp Asp Gly Ser Asn Arg Thr  
 145 150 155 160  
 Ser Leu Ile Asp Ser Arg Leu Val Ser Val His Glu Ser Gly Trp Lys  
 165 170 175  
 Ala Phe Asp Val Thr Glu Ala Val Asn Phe Trp Gln Gln Leu Ser Arg  
 180 185 190  
 Pro Arg Gln Pro Leu Leu Leu Gln Val Ser Val Gln Arg Glu His Leu  
 195 200 205  
 Gly Pro Leu Ala Ser Gly Ala His Lys Leu Val Arg Phe Ala Ser Gln  
 210 215 220  
 Gly Ala Pro Ala Gly Leu Gly Glu Pro Gln Leu Glu Leu His Thr Leu  
 225 230 235 240  
 Asp Leu Gly Asp Tyr Gly Ala Gln Gly Asp Cys Asp Pro Glu Ala Pro  
 245 250 255  
 Met Thr Glu Gly Thr Arg Cys Cys Arg Gln Glu Met Tyr Ile Asp Leu  
 260 265 270  
 Gln Gly Met Lys Trp Ala Glu Asn Trp Val Leu Glu Pro Pro Gly Phe  
 275 280 285  
 Leu Ala Tyr Glu Cys Val Gly Thr Cys Arg Gln Pro Pro Glu Ala Leu  
 290 295 300  
 Ala Phe Lys Trp Pro Phe Leu Gly Pro Arg Gln Cys Ile Ala Ser Glu  
 305 310 315 320  
 Thr Asp Ser Leu Pro Met Ile Val Ser Ile Lys Glu Gly Gly Arg Thr  
 325 330 335

Arg Pro Gln Val Val Ser Leu Pro Asn Met Arg Val Gln Lys Cys Ser  
                   340                  345                  350

Cys Ala Ser Asp Gly Ala Leu Val Pro Arg Arg Leu Gln Pro  
                   355                  360                  365

<210> 115

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe

<400> 115

aggactgccca taacttgct g

21

<210> 116

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe

<400> 116

ataggagttg aagcagcgct gc

22

<210> 117

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           oligonucleotide probe

<400> 117

tgtgtggaca tagacgagtg ccgctaccgc tactgccagc accgc

45

<210> 118

<211> 1857

<212> DNA

<213> Homo sapiens

<400> 118

gtctgttccc aggagtcctt cggcggctgt tgtgtcagtg gctgacgc gatggggaca 60  
 aaggcgcaag tcgagaggaa actgttgtgc ctcttcata tggcgatcct gttgtgctcc 120  
 ctggcattgg gcagtgttac agtgcactct tctgaacctg aagtcagaat tctgagaat 180

```

aatcctgtga agttgtcctg tgcctactcg ggcttttctt ctccccgtgt ggagtgggaag 240
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ggagaaaccc tactggaaat acaaagttag ccaggcatgg tggatcatgc ctgtagtccc 1800
agctgctcag gagcctggca acaagagcaa aactccagct caaaaaaaaa aaaaaaa 1857

```

<210> 119

<211> 299

<212> PRT

<213> Homo sapiens

<400> 119

```

Met Gly Thr Lys Ala Gln Val Glu Arg Lys Leu Leu Cys Leu Phe Ile
  1              5              10              15

```

```

Leu Ala Ile Leu Leu Cys Ser Leu Ala Leu Gly Ser Val Thr Val His
      20              25              30

```

```

Ser Ser Glu Pro Glu Val Arg Ile Pro Glu Asn Asn Pro Val Lys Leu
      35              40              45

```

```

Ser Cys Ala Tyr Ser Gly Phe Ser Ser Pro Arg Val Glu Trp Lys Phe
      50              55              60

```

```

Asp Gln Gly Asp Thr Thr Arg Leu Val Cys Tyr Asn Asn Lys Ile Thr
      65              70              75              80

```

```

Ala Ser Tyr Glu Asp Arg Val Thr Phe Leu Pro Thr Gly Ile Thr Phe
      85              90              95

```

Lys Ser Val Thr Arg Glu Asp Thr Gly Thr Tyr Thr Cys Met Val Ser  
                   100                  105                  110  
 Glu Glu Gly Gly Asn Ser Tyr Gly Glu Val Lys Val Lys Leu Ile Val  
                   115                  120                  125  
 Leu Val Pro Pro Ser Lys Pro Thr Val Asn Ile Pro Ser Ser Ala Thr  
                   130                  135                  140  
 Ile Gly Asn Arg Ala Val Leu Thr Cys Ser Glu Gln Asp Gly Ser Pro  
 145                  150                  155                  160  
 Pro Ser Glu Tyr Thr Trp Phe Lys Asp Gly Ile Val Met Pro Thr Asn  
                   165                  170                  175  
 Pro Lys Ser Thr Arg Ala Phe Ser Asn Ser Ser Tyr Val Leu Asn Pro  
                   180                  185                  190  
 Thr Thr Gly Glu Leu Val Phe Asp Pro Leu Ser Ala Ser Asp Thr Gly  
                   195                  200                  205  
 Glu Tyr Ser Cys Glu Ala Arg Asn Gly Tyr Gly Thr Pro Met Thr Ser  
                   210                  215                  220  
 Asn Ala Val Arg Met Glu Ala Val Glu Arg Asn Val Gly Val Ile Val  
 225                  230                  235                  240  
 Ala Ala Val Leu Val Thr Leu Ile Leu Leu Gly Ile Leu Val Phe Gly  
                   245                  250                  255  
 Ile Trp Phe Ala Tyr Ser Arg Gly His Phe Asp Arg Thr Lys Lys Gly  
                   260                  265                  270  
 Thr Ser Ser Lys Lys Val Ile Tyr Ser Gln Pro Ser Ala Arg Ser Glu  
                   275                  280                  285  
 Gly Glu Phe Lys Gln Thr Ser Ser Phe Leu Val  
                   290                  295

<210> 120

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 120

tcgcgagct gtgttctgtt tccc

24

<210> 121

<211> 50





## oligonucleotide probe

&lt;400&gt; 125

actcagcagtg ggtaggaaag

20

&lt;210&gt; 126

&lt;211&gt; 1210

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 126

```

cagcgcgtgg cggcgccgc tgtggggaca gcatgagcgg cggttggatg ggcaggttg 60
gagcgtggcg aacaggggct ctgggcctgg cgtgctgct gctgctcggc ctgggactag 120
gcctggaggc cgccgcgagc ccgctttcca ccccgacctc tgcccaggcc gcaggcccca 180
gctcaggctc gtgcccaccc accaagttcc agtgccgcac cagtggctta tgcgtgcccc 240
tcacctggcg ctgcgacagg gacttggact gcagcgatgg cagcgatgag gaggagtga 300
ggattgagcc atgtacccag aaagggcaat gcccaccgcc ccctggcctc ccctgccccct 360
gcaccggcgt cagtgaactg tctgggggaa ctgacaagaa actgcgcaac tgcagccgcc 420
tggcctgcct agcaggcgag ctccgttgca cgtgagcga tgactgcatt ccactcacgt 480
ggcgtgcca cggccacca gactgtcccg actccagcga cgagctcggc tgtggaacca 540
atgagatcct cccggaaggg gatgccaca ccatggggcc ccctgtgacc ctggagagtg 600
tcacctctct caggaatgcc acaaccatgg ggccccctgt gaccctggag agtgccccct 660
ctgtcgggaa tgccacatcc tcctctgccg gagaccagtc tggaaagcca actgcctatg 720
gggttattgc agctgctgcg gtgctcagtg caagcctggg caccgccacc ctctcctttt 780
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ccgtcactca gccctgggcg tagccggaca ggaggagagc agtgatgcgg atgggtacct 960
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ggggtagaac ggccctgtgc ttaagacact ccctgctgcc ccgtctgagg gtggcgatta 1200
aagttgcttc                                     1210

```

&lt;210&gt; 127

&lt;211&gt; 282

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 127

```

Met Ser Gly Gly Trp Met Ala Gln Val Gly Ala Trp Arg Thr Gly Ala
  1           5           10           15

```

```

Leu Gly Leu Ala Leu Leu Leu Leu Leu Gly Leu Gly Leu Gly Leu Glu
      20           25           30

```

```

Ala Ala Ala Ser Pro Leu Ser Thr Pro Thr Ser Ala Gln Ala Ala Gly
      35           40           45

```

```

Pro Ser Ser Gly Ser Cys Pro Pro Thr Lys Phe Gln Cys Arg Thr Ser
      50           55           60

```

```

Gly Leu Cys Val Pro Leu Thr Trp Arg Cys Asp Arg Asp Leu Asp Cys
      65           70           75           80

```

Ser Asp Gly Ser Asp Glu Glu Glu Cys Arg Ile Glu Pro Cys Thr Gln  
                             85                            90                            95  
 Lys Gly Gln Cys Pro Pro Pro Pro Gly Leu Pro Cys Pro Cys Thr Gly  
                             100                            105                            110  
 Val Ser Asp Cys Ser Gly Gly Thr Asp Lys Lys Leu Arg Asn Cys Ser  
                             115                            120                            125  
 Arg Leu Ala Cys Leu Ala Gly Glu Leu Arg Cys Thr Leu Ser Asp Asp  
                             130                            135                            140  
 Cys Ile Pro Leu Thr Trp Arg Cys Asp Gly His Pro Asp Cys Pro Asp  
                             145                            150                            155                            160  
 Ser Ser Asp Glu Leu Gly Cys Gly Thr Asn Glu Ile Leu Pro Glu Gly  
                             165                            170                            175  
 Asp Ala Thr Thr Met Gly Pro Pro Val Thr Leu Glu Ser Val Thr Ser  
                             180                            185                            190  
 Leu Arg Asn Ala Thr Thr Met Gly Pro Pro Val Thr Leu Glu Ser Val  
                             195                            200                            205  
 Pro Ser Val Gly Asn Ala Thr Ser Ser Ser Ala Gly Asp Gln Ser Gly  
                             210                            215                            220  
 Ser Pro Thr Ala Tyr Gly Val Ile Ala Ala Ala Ala Val Leu Ser Ala  
                             225                            230                            235                            240  
 Ser Leu Val Thr Ala Thr Leu Leu Leu Leu Ser Trp Leu Arg Ala Gln  
                             245                            250                            255  
 Glu Arg Leu Arg Pro Leu Gly Leu Leu Val Ala Met Lys Glu Ser Leu  
                             260                            265                            270  
 Leu Leu Ser Glu Gln Lys Thr Ser Leu Pro  
                             275                            280

<210> 128

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 128

aagttccagt gccgcaccag tggc

<210> 129

<211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 129

ttggttccac agccgagctc gtcg

24

<210> 130

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 130

gaggaggagt gcaggattga gccatgtacc cagaaagggc aatgcccacc

50

<210> 131

<211> 1843

<212> DNA

<213> Homo sapiens

<220>

<221> modified\_base

<222> (1837)

<223> a, t, c or g

<400> 131

```

cccacgcgtc cgggtctcgct cgctcgcgca gcggcggcag cagaggtcgc gcacagatgc 60
gggttagact ggcgggggga ggaggcggag gagggaagga agctgcatgc atgagacca 120
cagactcttg caagctggat gccctctgtg gatgaaagat gtatcatgga atgaaccga 180
gcaatggaga tggatttcta gacgagcagc agcagcagca gcaacctcag tccccccaga 240
gactcttggc cgtgatcctg tggtttcagc tggcgctgtg cttcggccct gcacagctca 300
cgggcggggt cgatgacctt caagtgtgtg ctgaccccg cttcccgag aatggcttca 360
ggacccccag cggagggggt ttctttgaag gctctgtagc ccgatttcac tgccaagacg 420
gattcaagct gaagggcgct acaaagagac tgtgtttgaa gcattttaat ggaaccctag 480
gctggatccc aagtataat tccatctgtg tgcaagaaga ttgccgtatc cctcaaateg 540
aagatgctga gattcataac aagacatata gacatggaga gaagctaate atcacttgct 600
atgaaggatt caagatccgg taccgccacc tacacaatat ggtttcatta tgcgcgatg 660
atggaacgtg gaataatctg cccatctgtc aaggctgcct gagacctcta gcctcttcta 720
atggctatgt aaacatctct gagctccaga cctccttccc ggtggggact gtgatctcct 780
atcgctgctt tcccggattt aaacttgatg ggtctgcgta tcttgagtgc ttacaaaacc 840
ttatctggtc gtccagccca ccccggtgcc ttgctctgga agcccaagtc tgtccactac 900
ctccaatggt gagtacgga gatttcgtct gccaccgcg gccttgtgag cgctacaacc 960
acggaactgt ggtggagttt tactgcgac ctggctacag cctcaccagc gactacaagt 1020
acatcacctg ccagtatgga gagtggtttc cttcttatca agtctactgc atcaaateag 1080
agcaaactgt gccagcacc catgagaccc tccagaccac gtggaagatt gtggcggttca 1140

```

```
<210> 132
<211> 490
<212> PRT
<213> Homo sapiens
```

Met Tyr His Gly Met Asn Pro Ser Asn Gly Asp Gly Phe Leu Glu Gln  
1 5 10 15

Ile Leu Trp Phe Gln Leu Ala Leu Cys Phe Gly Pro Ala Gln Leu Thr  
35 40 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Gly | Phe | Arg | Thr | Pro | Ser | Gly | Gly | Val | Phe | Phe | Glu | Gly | Ser | Val |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |

Arg Leu Cys Leu Lys His Phe Asn Gly Thr Leu Gly Trp Ile Pro Ser  
100 105 110

Asp Ala Glu Ile His Asn Lys Thr Tyr Arg His Gly Glu Lys Leu Ile  
130 135 140

Met Val Ser Leu Cys Arg Asp Asp Gly Thr Trp Asn Asn Leu Pro Ile  
165 170 175

Cys Gln Gly Cys Leu Arg Pro Leu Ala Ser Ser Asn Gly Tyr Val Asn

[illegible]

Ile Ala Ser Thr Ala Glu Glu Val Ala Ser Thr Ser Pro Gly Ile His  
 465 470 475 480

His Ala His Trp Val Leu Phe Leu Arg Asn  
 485 490

<210> 133

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 133

atctcctatc gctgctttcc cgg

23

<210> 134

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 134

agccaggatc gcagtaaaac tcc

23

<210> 135

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 135

atttaaactt gatgggtctg cgtatcttga gtgcttaca aaccttatct

50

<210> 136

<211> 1815

<212> DNA

<213> Homo sapiens

<400> 136

cccacgcgtc cgctccgcgc cctccccccc gcctcccgctg cggtcgctcg gtggcctaga 60  
 gatgctgctg ccgcgggttg agttgtcgcg cagcctctg cccgccagcc cgctccaccg 120  
 ccgtagcgcc cgagtgtcgg ggggcgcacc cgagtcgggc catgaggccg ggaaccgcgc 180  
 tacaggccgt gctgctggcc gtgctgctgg tggggctgcg ggccgcgacg ggtcgccctgc 240  
 tgagtgcctc ggatttgac ctcagaggag ggcagccagt ctgccgggga gggacacaga 300

```

ggccttggtta taaagtcatt tacttccatg atactttctcg aagactgaac tttgaggaag 360
ccaaagaagc ctgcaggagg gatggaggcc agctagtcag catcgagtct gaagatgaac 420
agaaactgat agaaaagttc attgaaaacc tcttgccatc tgatggtgac ttctggattg 480
ggctcaggag gcgtgaggag aaacaaagca atagcacagc ctgccaggac ctttatgctt 540
ggactgatgg cagcatatca caatttagga actggtatgt ggatgagccg tcctgcggca 600
gcgaggtctg cgtgggtcatg taccatcagc catcggcacc cgctggcatc ggaggccccct 660
acatgttcca gtggaatgat gaccggtgca acatgaagaa caatttcatt tgcaaatatt 720
ctgatgagaa accagcagtt ccttctagag aagctgaagg tgaggaaaca gagctgacaa 780
cacctgtact tccagaagaa acacaggaag aagatgccaa aaaaacattt aaagaaagta 840
gagaagctgc cttgaatctg gcctacatcc taatccccag cattccccct ctcctcctcc 900
ttgtggtcac cacagttgta tgttgggttt ggatctgtag aaaaagaaaa cgggagcagc 960
cagaccctag cacaaagaag caacacacca tctggccctc tcctcaccag ggaaacagcc 1020
cggacctaga ggtctacaat gtcataagaa aacaaagcga agctgactta gctgagaccc 1080
ggccagacct gaagaatatt tcattccgag tgtgttcggg agaagccact cccgatgaca 1140
tgtcttgtga ctatgacaac atggctgtga acccatcaga aagtgggttt gtgactctgg 1200
tgagcgtgga gagtggattt gtgaccaatg acatttatga gttctcccca gaccaaatgg 1260
ggaggagtaa ggagtctgga tgggtggaaa atgaaatata tggttattag gacatataaa 1320
aaactgaaac tgacaacaat ggaaaagaaa tgataagcaa aatcctctta ttttctataa 1380
ggaaaataca cagaaggtct atgaacaagc ttagatcagg tcctgtggat gagcatgtgg 1440
tccccacgac ctctgttggt acccccacgt tttggctgta tcctttatcc cagccagtca 1500
tccagctcga ccttatgaga aggtaccttg cccaggtctg gcacatagta gagtctcaat 1560
aaatgtcact tggttgggtg tatctaactt ttaagggaca gagctttacc tggcagtgat 1620
aaagatgggc tgtggagctt ggaaaaccac ctctgttttc cttgctctat acagcagcac 1680
atattatcat acagacagaa aatccagaat cttttcaaag cccacatatg gtagcacagg 1740
ttggcctgtg catcggcaat tctcatatct gtttttttca aagaataaaa tcaaataaag 1800
agcaggaaaa aaaaaa 1815

```

<210> 137

<211> 382

<212> PRT

<213> Homo sapiens

<400> 137

```

Met Arg Pro Gly Thr Ala Leu Gln Ala Val Leu Leu Ala Val Leu Leu
  1                      5                      10                     15

```

```

Val Gly Leu Arg Ala Ala Thr Gly Arg Leu Leu Ser Ala Ser Asp Leu
                20                      25                     30

```

```

Asp Leu Arg Gly Gly Gln Pro Val Cys Arg Gly Gly Thr Gln Arg Pro
    35                      40                     45

```

```

Cys Tyr Lys Val Ile Tyr Phe His Asp Thr Ser Arg Arg Leu Asn Phe
    50                      55                     60

```

```

Glu Glu Ala Lys Glu Ala Cys Arg Arg Asp Gly Gly Gln Leu Val Ser
    65                      70                     75                     80

```

```

Ile Glu Ser Glu Asp Glu Gln Lys Leu Ile Glu Lys Phe Ile Glu Asn
                85                      90                     95

```

```

Leu Leu Pro Ser Asp Gly Asp Phe Trp Ile Gly Leu Arg Arg Arg Glu
    100                     105                    110

```



Glu Lys Gln Ser Asn Ser Thr Ala Cys Gln Asp Leu Tyr Ala Trp Thr  
 115 120 125  
 Asp Gly Ser Ile Ser Gln Phe Arg Asn Trp Tyr Val Asp Glu Pro Ser  
 130 135 140  
 Cys Gly Ser Glu Val Cys Val Val Met Tyr His Gln Pro Ser Ala Pro  
 145 150 155 160  
 Ala Gly Ile Gly Gly Pro Tyr Met Phe Gln Trp Asn Asp Asp Arg Cys  
 165 170 175  
 Asn Met Lys Asn Asn Phe Ile Cys Lys Tyr Ser Asp Glu Lys Pro Ala  
 180 185 190  
 Val Pro Ser Arg Glu Ala Glu Gly Glu Glu Thr Glu Leu Thr Thr Pro  
 195 200 205  
 Val Leu Pro Glu Glu Thr Gln Glu Glu Asp Ala Lys Lys Thr Phe Lys  
 210 215 220  
 Glu Ser Arg Glu Ala Ala Leu Asn Leu Ala Tyr Ile Leu Ile Pro Ser  
 225 230 235 240  
 Ile Pro Leu Leu Leu Leu Leu Val Val Thr Thr Val Val Cys Trp Val  
 245 250 255  
 Trp Ile Cys Arg Lys Arg Lys Arg Glu Gln Pro Asp Pro Ser Thr Lys  
 260 265 270  
 Lys Gln His Thr Ile Trp Pro Ser Pro His Gln Gly Asn Ser Pro Asp  
 275 280 285  
 Leu Glu Val Tyr Asn Val Ile Arg Lys Gln Ser Glu Ala Asp Leu Ala  
 290 295 300  
 Glu Thr Arg Pro Asp Leu Lys Asn Ile Ser Phe Arg Val Cys Ser Gly  
 305 310 315 320  
 Glu Ala Thr Pro Asp Asp Met Ser Cys Asp Tyr Asp Asn Met Ala Val  
 325 330 335  
 Asn Pro Ser Glu Ser Gly Phe Val Thr Leu Val Ser Val Glu Ser Gly  
 340 345 350  
 Phe Val Thr Asn Asp Ile Tyr Glu Phe Ser Pro Asp Gln Met Gly Arg  
 355 360 365  
 Ser Lys Glu Ser Gly Trp Val Glu Asn Glu Ile Tyr Gly Tyr  
 370 375 380

<211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 138

gttcattgaa aacctcttgc catctgatgg tgacttctgg attgggctca 50

<210> 139

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 139

aagccaaaga agcctgcagg aggg 24

<210> 140

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 140

cagtccaagc ataaagggtcc tggc 24

<210> 141

<211> 1514

<212> DNA

<213> Homo sapiens

<400> 141

ggggtctccc tcagggccgg gaggcacagc ggtccctgct tgctgaaggg ctggatgtac 60  
 gcatccgcag gttcccgcgg acttgggggc gcccgctgag ccccggcgcc cgcagaagac 120  
 ttgtgtttgc ctctgcagc ctcaaccgcg agggcagcga gggcctacca ccatgatcac 180  
 tgggtgtgttc agcatgcgct tgtggacccc agtgggcgct ctgacctcgc tggcgactcg 240  
 cctgcaccag cggcgggtgg ccctggccga gctgcaggag gccgatggcc agtgtccggt 300  
 cgaccgcagc ctgctgaagt tgaaaatggt gcaggctcgtg tttcgacacg gggctcggag 360  
 tcctctcaag ccgctcccgc tggaggagca ggtagagtgg aacccccagc tattagaggt 420  
 cccaccccaa actcagtttg attacacagt caccaatcta gctggtggtc cgaaaccata 480  
 ttctccttac gactctcaat accatgagac caccctgaag gggggcatgt ttgctgggca 540  
 gctgaccaag gtgggcatgc agcaaagtgt tgccttggga gagagactga ggaagaacta 600  
 tgtggaagac attccctttc tttcaccaac cttcaaccca caggaggtct ttattcgttc 660  
 cactaacatt tttcggaatc tggagtcac ccgttggttg ctggctgggc ttttccagtg 720

```

tcagaaagaa ggacccatca tcatccacac tgatgaagca gattcagaag tcttgatcc 780
caactaccaa agctgctgga gcctgaggca gagaaccaga ggccggaggc agactgcctc 840
tttacagcca ggaatctcag aggatttgaa aaaggtgaag gacaggatgg gcattgacag 900
tagtgataaa gtggacttct tcatcctcct ggacaacgtg gctgccgagc aggcacacaa 960
cctcccaagc tgcccatgc tgaagagatt tgcacggatg atcgaacaga gagctgtgga 1020
cacatccttg tacatactgc ccaaggaaga cagggaaagt cttcagatgg cagtaggccc 1080
attcctccac atcctagaga gcaacctgct gaaagccatg gactctgcca ctgccccga 1140
caagatcaga aagctgtatc tctatgcggc tcatgatgtg accttcatac cgctcttaat 1200
gaccctgggg atttttgacc acaaatggcc accgtttgct gttgacctga ccatggaact 1260
ttaccagcac ctggaatcta aggagtgggt tgtgcagctc tattaccacg ggaaggagca 1320
ggtgccgaga ggttgccctg atgggctctg cccgctggac atgttcttga atgccatgtc 1380
agtttatacc ttaagcccag aaaaatacca tgcactctgc tctcaaactc aggtgatgga 1440
agttggaaat gaagagtaac tgatttataa aagcaggatg tggtgatttt aaaataaagt 1500
gcctttatac aatg 1514

```

<210> 142

<211> 428

<212> PRT

<213> Homo sapiens

<400> 142

```

Met Ile Thr Gly Val Phe Ser Met Arg Leu Trp Thr Pro Val Gly Val
  1             5             10             15

```

```

Leu Thr Ser Leu Ala Tyr Cys Leu His Gln Arg Arg Val Ala Leu Ala
      20             25             30

```

```

Glu Leu Gln Glu Ala Asp Gly Gln Cys Pro Val Asp Arg Ser Leu Leu
      35             40             45

```

```

Lys Leu Lys Met Val Gln Val Val Phe Arg His Gly Ala Arg Ser Pro
      50             55             60

```

```

Leu Lys Pro Leu Pro Leu Glu Glu Gln Val Glu Trp Asn Pro Gln Leu
      65             70             75             80

```

```

Leu Glu Val Pro Pro Gln Thr Gln Phe Asp Tyr Thr Val Thr Asn Leu
      85             90             95

```

```

Ala Gly Gly Pro Lys Pro Tyr Ser Pro Tyr Asp Ser Gln Tyr His Glu
      100            105            110

```

```

Thr Thr Leu Lys Gly Gly Met Phe Ala Gly Gln Leu Thr Lys Val Gly
      115            120            125

```

```

Met Gln Gln Met Phe Ala Leu Gly Glu Arg Leu Arg Lys Asn Tyr Val
      130            135            140

```

```

Glu Asp Ile Pro Phe Leu Ser Pro Thr Phe Asn Pro Gln Glu Val Phe
      145            150            155            160

```

```

Ile Arg Ser Thr Asn Ile Phe Arg Asn Leu Glu Ser Thr Arg Cys Leu
      165            170            175

```

Leu Ala Gly Leu Phe Gln Cys Gln Lys Glu Gly Pro Ile Ile Ile His  
 180 185 190  
 Thr Asp Glu Ala Asp Ser Glu Val Leu Tyr Pro Asn Tyr Gln Ser Cys  
 195 200 205  
 Trp Ser Leu Arg Gln Arg Thr Arg Gly Arg Arg Gln Thr Ala Ser Leu  
 210 215 220  
 Gln Pro Gly Ile Ser Glu Asp Leu Lys Lys Val Lys Asp Arg Met Gly  
 225 230 235 240  
 Ile Asp Ser Ser Asp Lys Val Asp Phe Phe Ile Leu Leu Asp Asn Val  
 245 250 255  
 Ala Ala Glu Gln Ala His Asn Leu Pro Ser Cys Pro Met Leu Lys Arg  
 260 265 270  
 Phe Ala Arg Met Ile Glu Gln Arg Ala Val Asp Thr Ser Leu Tyr Ile  
 275 280 285  
 Leu Pro Lys Glu Asp Arg Glu Ser Leu Gln Met Ala Val Gly Pro Phe  
 290 295 300  
 Leu His Ile Leu Glu Ser Asn Leu Leu Lys Ala Met Asp Ser Ala Thr  
 305 310 315 320  
 Ala Pro Asp Lys Ile Arg Lys Leu Tyr Leu Tyr Ala Ala His Asp Val  
 325 330 335  
 Thr Phe Ile Pro Leu Leu Met Thr Leu Gly Ile Phe Asp His Lys Trp  
 340 345 350  
 Pro Pro Phe Ala Val Asp Leu Thr Met Glu Leu Tyr Gln His Leu Glu  
 355 360 365  
 Ser Lys Glu Trp Phe Val Gln Leu Tyr Tyr His Gly Lys Glu Gln Val  
 370 375 380  
 Pro Arg Gly Cys Pro Asp Gly Leu Cys Pro Leu Asp Met Phe Leu Asn  
 385 390 395 400  
 Ala Met Ser Val Tyr Thr Leu Ser Pro Glu Lys Tyr His Ala Leu Cys  
 405 410 415  
 Ser Gln Thr Gln Val Met Glu Val Gly Asn Glu Glu  
 420 425

&lt;210&gt; 143

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

24

<213> Artificial Sequence

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

24

<213> Artificial Sequence

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

24

<213> Artificial Sequence

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

45

<213> Homo sapiens

|             |            |            |             |            |             |     |
|-------------|------------|------------|-------------|------------|-------------|-----|
| ctccctcttaa | catacttgca | gctaaaacta | aatattgctg  | cttggggacc | tcttcttagc  | 60  |
| cttaaatttc  | agctcatcac | cttcacctgc | cttgggtcatg | gctctgctat | tctccttgat  | 120 |
| ccttgccatt  | tgcaccagac | ctggattcct | agcgtctcca  | tctggagtgc | ggctgggtggg | 180 |

```

gggcctccac cgctgtgaag ggcgggtgga ggtggaacag aaaggccagt ggggcaccgt 240
gtgtgatgac ggctgggaca ttaaggacgt ggctgtgttg tgccgggagc tgggctgtgg 300
agctgccagc ggaacccta gtggtatatt gtatgagcca ccagcagaaa aagagcaaaa 360
ggcctcatc caatcagtc gttgcacagg aacagaagat acattggctc agtgtgagca 420
agaagaagtt tatgattgtt cacatgatga agatgctggg gcatcgtgtg agaaccaga 480
gagctctttc tccccagtc cagagggtgt caggctggct gacggccctg ggcattgcaa 540
gggacgcgtg gaagtgaagc accagaacca gtggtatacc gtgtgccaga caggctggag 600
cctccgggcc gcaaagggtg tgtgccggca gctgggatgt gggagggctg tactgactca 660
aaaacgctgc aacaagcatg cctatggccg aaaacccatc tggctgagcc agatgtcatg 720
ctcaggacga gaagcaaccc ttcaggattg cccttctggg ccttggggga agaacacctg 780
caaccatgat gaagacacgt gggtcgaatg tgaagatccc tttgacttga gactagtagg 840
aggagacaac ctctgctctg ggcgactgga ggtgctgcac aagggcgat ggggctctgt 900
ctgtgatgac aactggggag aaaaggagga ccagggtgta tgcaagcaac tgggctgtgg 960
gaagtccttc tctccctcct tcagagaccg gaaatgctat ggccctgggg ttggccgcat 1020
ctggctggat aatgttcgtt gctcagggga ggagcagtc ctggagcagt gccagcacag 1080
atattggggg ttacagact gcacccacca ggaagatgtg gctgtcatct gctcagtgt 1140
ggtgggcatc atctaactct ttgagtgcct gaatagaaga aaaacacaga agaagggagc 1200
atttactgtc tacatgactg catgggatga aactgatct tcttctgccc ttggactggg 1260
acttataact ggtgcccctg attctcaggc cttcagagtt ggatcagaac ttacaacatc 1320
aggtctagtt ctcaggccat cagacatagt ttggaactac atcaccacct ttcctatgtc 1380
tccacattgc acacagcaga ttcccagcct ccataattgt gtgtatcaac tacttaaata 1440
cattctcaca cacacacaca cacacacaca cacacacaca ccatttgtcc 1500
tgtttctctg aagaactctg acaaaataca gattttggta ctgaaagaga ttctagagga 1560
acggaatttt aaggataaat tttctgaatt gggttatggg tttctgaaat tggctctata 1620
atctaattag atataaaatt ctggtaactt tatttacaat aataaagata gcactatgtg 1680
ttcaaa 1686

```

<210> 148

<211> 347

<212> PRT

<213> Homo sapiens

<400> 148

```

Met Ala Leu Leu Phe Ser Leu Ile Leu Ala Ile Cys Thr Arg Pro Gly
  1             5             10            15

```

```

Phe Leu Ala Ser Pro Ser Gly Val Arg Leu Val Gly Gly Leu His Arg
      20             25             30

```

```

Cys Glu Gly Arg Val Glu Val Glu Gln Lys Gly Gln Trp Gly Thr Val
      35             40             45

```

```

Cys Asp Asp Gly Trp Asp Ile Lys Asp Val Ala Val Leu Cys Arg Glu
      50             55             60

```

```

Leu Gly Cys Gly Ala Ala Ser Gly Thr Pro Ser Gly Ile Leu Tyr Glu
      65             70             75             80

```

```

Pro Pro Ala Glu Lys Glu Gln Lys Val Leu Ile Gln Ser Val Ser Cys
      85             90             95

```

```

Thr Gly Thr Glu Asp Thr Leu Ala Gln Cys Glu Gln Glu Glu Val Tyr
     100             105             110

```

Asp Cys Ser His Asp Glu Asp Ala Gly Ala Ser Cys Glu Asn Pro Glu  
 115 120 125  
 Ser Ser Phe Ser Pro Val Pro Glu Gly Val Arg Leu Ala Asp Gly Pro  
 130 135 140  
 Gly His Cys Lys Gly Arg Val Glu Val Lys His Gln Asn Gln Trp Tyr  
 145 150 155 160  
 Thr Val Cys Gln Thr Gly Trp Ser Leu Arg Ala Ala Lys Val Val Cys  
 165 170 175  
 Arg Gln Leu Gly Cys Gly Arg Ala Val Leu Thr Gln Lys Arg Cys Asn  
 180 185 190  
 Lys His Ala Tyr Gly Arg Lys Pro Ile Trp Leu Ser Gln Met Ser Cys  
 195 200 205  
 Ser Gly Arg Glu Ala Thr Leu Gln Asp Cys Pro Ser Gly Pro Trp Gly  
 210 215 220  
 Lys Asn Thr Cys Asn His Asp Glu Asp Thr Trp Val Glu Cys Glu Asp  
 225 230 235 240  
 Pro Phe Asp Leu Arg Leu Val Gly Gly Asp Asn Leu Cys Ser Gly Arg  
 245 250 255  
 Leu Glu Val Leu His Lys Gly Val Trp Gly Ser Val Cys Asp Asp Asn  
 260 265 270  
 Trp Gly Glu Lys Glu Asp Gln Val Val Cys Lys Gln Leu Gly Cys Gly  
 275 280 285  
 Lys Ser Leu Ser Pro Ser Phe Arg Asp Arg Lys Cys Tyr Gly Pro Gly  
 290 295 300  
 Val Gly Arg Ile Trp Leu Asp Asn Val Arg Cys Ser Gly Glu Glu Gln  
 305 310 315 320  
 Ser Leu Glu Gln Cys Gln His Arg Phe Trp Gly Phe His Asp Cys Thr  
 325 330 335  
 His Gln Glu Asp Val Ala Val Ile Cys Ser Val  
 340 345

<210> 149

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

## oligonucleotide probe

&lt;400&gt; 149

ttcagctcat caccttcacc tgcc

24

&lt;210&gt; 150

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 150

ggctcataca aaataccact aggg

24

&lt;210&gt; 151

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 151

gggcctccac cgctgtgaag ggcgggtgga ggtggaacag aaaggccagt

50

&lt;210&gt; 152

&lt;211&gt; 1427

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 152

```

actgcactcg gttctatcga ttgaattccc cggggatcct ctagagatcc ctcgacctcg 60
accacgcgt ccgcggacgc gtgggcggac gcgtgggccc gctaccagga agagtctgcc 120
gaagggtgaag gccatggact tcatcacctc cacagccatc ctgcccctgc tgttcgggtg 180
cctgggcgtc ttcggcctct tccggtgct gcagtgggtg cgcgggaagg cctacctgcg 240
gaatgctgtg gtggtgatca caggcgccac ctgagggtg ggcaaagaat gtgcaaaagt 300
cttctatgct gcgggtgcta aactggtgct ctgtggccgg aatggtgggg ccctagaaga 360
gctcatcaga gaacttaccg cttctcatgc caccaagggtg cagacacaca agccttactt 420
ggtgaccttc gacctcacag actctggggc catagttgca gcagcagctg agatcctgca 480
gtgctttggc tatgtcgaca tacttgtcaa caatgctggg atcagctacc gtggtaccat 540
catggacacc acagtggatg tggacaagag ggtcatggag acaaactact ttggccaggt 600
tgctctaacg aaagcactcc tgccctccat gatcaagagg aggcaaggcc acattgtgcg 660
catcagcagc atccagggca agatgagcat tccttttcga tcagcatatg cagcctccaa 720
gcacgcaacc caggctttct ttgactgtct gcgtgccgag atggaacagt atgaaattga 780
ggtgaccgtc atcagccccg gctacatcca caccaacctc tctgtaaagt ccacaccgc 840
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ggtggccag gatgttcttg ctgctgtggg gaagaagaag aaagatgtga tcctggctga 960
cttactgcct tccttggtg tttatcttcg aactctggct cctgggctct tcttcagcct 1020
catggcctcc agggccagaa aagagcggaa atccaagaac tcctagtact ctgaccagcc 1080

```



```

agggccaggg cagagaagca gcactcttag gcttgcttac tctacaaggg acagttgcat 1140
ttgttgagac tttaatggag atttgtctca caagtgggaa agactgaaga aacacatctc 1200
gtgcagatct gctggcagag gacaatcaaa aacgacaaca agcttcttcc caggggtgagg 1260
ggaaacactt aaggaataaa tatggagctg gggtttaaca ctaaaaacta gaaataaaca 1320
tctcaaacag taaaaaaaaa aaaaaagggc ggccgcgact ctagagtcga cctgcagaag 1380
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<210> 153

<211> 310

<212> PRT

<213> Homo sapiens

<400> 153

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Met Asp Phe Ile Thr Ser Thr Ala Ile Leu Pro Leu Leu Phe Gly Cys
  1                      5                      10                      15

```

```

Leu Gly Val Phe Gly Leu Phe Arg Leu Leu Gln Trp Val Arg Gly Lys
                20                      25                      30

```

```

Ala Tyr Leu Arg Asn Ala Val Val Val Ile Thr Gly Ala Thr Ser Gly
                35                      40                      45

```

```

Leu Gly Lys Glu Cys Ala Lys Val Phe Tyr Ala Ala Gly Ala Lys Leu
                50                      55                      60

```

```

Val Leu Cys Gly Arg Asn Gly Gly Ala Leu Glu Glu Leu Ile Arg Glu
                65                      70                      75                      80

```

```

Leu Thr Ala Ser His Ala Thr Lys Val Gln Thr His Lys Pro Tyr Leu
                85                      90                      95

```

```

Val Thr Phe Asp Leu Thr Asp Ser Gly Ala Ile Val Ala Ala Ala Ala
                100                      105                      110

```

```

Glu Ile Leu Gln Cys Phe Gly Tyr Val Asp Ile Leu Val Asn Asn Ala
                115                      120                      125

```

```

Gly Ile Ser Tyr Arg Gly Thr Ile Met Asp Thr Thr Val Asp Val Asp
                130                      135                      140

```

```

Lys Arg Val Met Glu Thr Asn Tyr Phe Gly Pro Val Ala Leu Thr Lys
                145                      150                      155                      160

```

```

Ala Leu Leu Pro Ser Met Ile Lys Arg Arg Gln Gly His Ile Val Ala
                165                      170                      175

```

```

Ile Ser Ser Ile Gln Gly Lys Met Ser Ile Pro Phe Arg Ser Ala Tyr
                180                      185                      190

```

```

Ala Ala Ser Lys His Ala Thr Gln Ala Phe Phe Asp Cys Leu Arg Ala
                195                      200                      205

```

```

Glu Met Glu Gln Tyr Glu Ile Glu Val Thr Val Ile Ser Pro Gly Tyr

```

210                                      215                                      220  
 Ile His Thr Asn Leu Ser Val Asn Ala Ile Thr Ala Asp Gly Ser Arg  
 225                                      230                                      235                                      240  
 Tyr Gly Val Met Asp Thr Thr Thr Ala Gln Gly Arg Ser Pro Val Glu  
                                     245                                      250                                      255  
 Val Ala Gln Asp Val Leu Ala Ala Val Gly Lys Lys Lys Lys Asp Val  
                                     260                                      265                                      270  
 Ile Leu Ala Asp Leu Leu Pro Ser Leu Ala Val Tyr Leu Arg Thr Leu  
                                     275                                      280                                      285  
 Ala Pro Gly Leu Phe Phe Ser Leu Met Ala Ser Arg Ala Arg Lys Glu  
                                     290                                      295                                      300  
 Arg Lys Ser Lys Asn Ser  
 305                                      310

<210> 154

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 154

ggtgctaaac tgggtgctctg tggc

24

<210> 155

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 155

cagggcaaga tgagcattcc

20

<210> 156

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 156  
tcatactgtt ccatactcggc acgc

24

<210> 157  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 157  
aatggtgggg ccctagaaga gctcatcaga gaactcaccg cttctcatgc

50

<210> 158  
<211> 1771  
<212> DNA  
<213> Homo sapiens

<400> 158  
cccacgcgtc cgctgggtgtt agatcgagca accctctaaa agcagtttag agtgggtaaaa 60  
aaaaaaaaaa acacacccaaa cgctcgcagc cacaaaaggg atgaaatttc ttctggacat 120  
cctcctgctt ctcccgttac tgatcgtctg ctccctagag tccttcgtga agctttttat 180  
tctaagagg agaaaatcag tcaccggcga aatcgtgctg attacaggag ctgggcatgg 240  
aattgggaga ctgactgcct atgaatttgc taaacttaaa agcaagctgg ttctctggga 300  
tataaataag catggactgg aggaaacagc tgccaaatgc aagggactgg gtgccaaggt 360  
tcataccttt gtggtagact gcagcaaccg agaagatatt tacagctctg caaagaaggt 420  
gaaggcagaa attggagatg ttagtatttt agtaaataat gctgggtgtag tctatacatc 480  
agatttggtt gctacacaag atcctcagat tgaaaagact tttgaagtta atgtacttgc 540  
acatttctgg actacaaagg catttcttcc tgcaatgacg aagaataacc atggccatat 600  
tgtcactgtg gcttcggcag ctggacatgt ctcggtcccc ttcttactgg ctactgttc 660  
aagcaagttt gctgctgttg gatttcataa aactttgaca gatgaactgg ctgccttaca 720  
aataactgga gtcaaaacaa catgtctgtg tctaatttc gtaaacactg gcttcatcaa 780  
aaatccaagt acaagtttg gacccactct ggaacctgag gaagtggtaa acaggctgat 840  
gcatgggatt ctgactgagc agaagatgat ttttattcca tcttctatag cttttttaac 900  
aacattggaa aggatccttc ctgagcgttt cctggcagtt ttaaaacgaa aaatcagtggt 960  
taagtttgat gcagttattg gatataaaat gaaagcgcaa taagcaccta gttttctgaa 1020  
aactgattta ccaggtttag gttgatgtca tctaatagtg ccagaatttt aatgtttgaa 1080  
cttctgtttt ttctaattat cccattttct tcaatatcat ttttgaggct ttggcagttc 1140  
tcatttacta ccacttgttc tttagccaaa agctgattac atatgatata aacagagaaa 1200  
tacctttaga ggtgacttta aggaaaatga agaaaaagaa ccaaaatgac tttattaaaa 1260  
taatttccaa gattatttgt ggctcacctg aaggctttgc aaaatttgta ccataaccgt 1320  
ttattttaaca tatattttta tttttgattg cacttaaat ttgtataatt tgtgtttctt 1380  
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gccactctgt ttcctgagag atacctcaca ttccaatgcc aaacatttct gcacagggaa 1560  
gctagagggt gatacacgtg ttgcaagtat aaaagcatca ctgggattta aggagaattg 1620  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a a 1771

<210> 159

|       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> | 159 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met   | Lys | Phe | Leu | Leu | Asp | Ile | Leu | Leu | Leu | Leu | Pro | Leu | Leu | Ile | Val |
| 1     |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Cys   | Ser | Leu | Glu | Ser | Phe | Val | Lys | Leu | Phe | Ile | Pro | Lys | Arg | Arg | Lys |
|       |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser   | Val | Thr | Gly | Glu | Ile | Val | Leu | Ile | Thr | Gly | Ala | Gly | His | Gly | Ile |
|       |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Gly   | Arg | Leu | Thr | Ala | Tyr | Glu | Phe | Ala | Lys | Leu | Lys | Ser | Lys | Leu | Val |
|       | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Leu   | Trp | Asp | Ile | Asn | Lys | His | Gly | Leu | Glu | Glu | Thr | Ala | Ala | Lys | Cys |
| 65    |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Lys   | Gly | Leu | Gly | Ala | Lys | Val | His | Thr | Phe | Val | Val | Asp | Cys | Ser | Asn |
|       |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Arg   | Glu | Asp | Ile | Tyr | Ser | Ser | Ala | Lys | Lys | Val | Lys | Ala | Glu | Ile | Gly |
|       |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asp   | Val | Ser | Ile | Leu | Val | Asn | Asn | Ala | Gly | Val | Val | Tyr | Thr | Ser | Asp |
|       |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu   | Phe | Ala | Thr | Gln | Asp | Pro | Gln | Ile | Glu | Lys | Thr | Phe | Glu | Val | Asn |
|       | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val   | Leu | Ala | His | Phe | Trp | Thr | Thr | Lys | Ala | Phe | Leu | Pro | Ala | Met | Thr |
| 145   |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Lys   | Asn | Asn | His | Gly | His | Ile | Val | Thr | Val | Ala | Ser | Ala | Ala | Gly | His |
|       |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val   | Ser | Val | Pro | Phe | Leu | Leu | Ala | Tyr | Cys | Ser | Ser | Lys | Phe | Ala | Ala |
|       |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Val   | Gly | Phe | His | Lys | Thr | Leu | Thr | Asp | Glu | Leu | Ala | Ala | Leu | Gln | Ile |
|       |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr   | Gly | Val | Lys | Thr | Thr | Cys | Leu | Cys | Pro | Asn | Phe | Val | Asn | Thr | Gly |
|       | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Phe   | Ile | Lys | Asn | Pro | Ser | Thr | Ser | Leu | Gly | Pro | Thr | Leu | Glu | Pro | Glu |
| 225   |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu   | Val | Val | Asn | Arg | Leu | Met | His | Gly | Ile | Leu | Thr | Glu | Gln | Lys | Met |
|       |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |

Ile Phe Ile Pro Ser Ser Ile Ala Phe Leu Thr Thr Leu Glu Arg Ile  
                   260                  265                  270

Leu Pro Glu Arg Phe Leu Ala Val Leu Lys Arg Lys Ile Ser Val Lys  
                   275                  280                  285

Phe Asp Ala Val Ile Gly Tyr Lys Met Lys Ala Gln  
                   290                  295                  300

<210> 160

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                   oligonucleotide probe

<400> 160

ggtgaaggca gaaattggag atg

23

<210> 161

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                   oligonucleotide probe

<400> 161

atcccatgca tcagcctggt tacc

24

<210> 162

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                   oligonucleotide probe

<400> 162

gctggtgtag tctatacatc agatttggtt gctacacaag atcctcag

48

<210> 163

<211> 2076

<212> DNA

<213> Homo sapiens

<400> 163

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attgtttcgc tggctcctggt gatgcctggc ccctgtgatg ggctgtttcg ctccctatac 180  
 agaagtgttt ccatgccacc taagggagac tcaggacagc cattatttct cacccttac 240  
 attgaagctg ggaagatcca aaaaggaaga gaattgagtt tggtcggccc tttcccagga 300  
 ctgaacatga agagttatgc cggcttcctc accgtgaata agacttataa cagcaacctc 360  
 ttcttctggt tcttcccagc tcagatacag ccagaagatg ccccagtagt tctctggcta 420  
 caggggtgggc cgggaggttc atccatgttt ggactctttg tggaacatgg gccttatgtt 480  
 gtcacaagta acatgacctt gcgtgacaga gacttcccct ggaccacaac gctctccatg 540  
 ctttacattg acaatccagt gggcacaggc ttcagtttta ctgatgatac ccacggatat 600  
 gcagtcaatg aggacgatgt agcacgggat ttatacagtg cactaattca gtttttccag 660  
 atatttcctg aatataaaaa taatgacttt tatgtcactg gggagtctta tgcagggaaa 720  
 tatgtgccag ccattgcaca cctcatccat tccctcaacc ctgtgagaga ggtgaagatc 780  
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 aaaggatggg atccttatgt tggataaact accttcccaa aagagaacat cagaggtttt 1560  
 cattgtcgaa aagaaaatcg taaaaacaga aaatgtcata ggaataaaaa aattatcttt 1620  
 tcatatctgc aagatttttt tcatcaataa aaattatcct tgaaacaagt gagcttttgt 1680  
 ttttgggggg agatgtttac tacaaaatta acatgagtac atgagtaaga attacattat 1740  
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 ttttaggggtc ttgaatagga agttttaatt tcttctaaga gtaagtgaag agtgcagttg 1860  
 taacaaacaa agctgtaaca tctttttctg ccaataacag aagtttggca tgccgtgaag 1920  
 gtgttttgaa atattattgg ataagaatag ctcaattatc ccaataaaat ggatgaagct 1980  
 ataatagttt tggggaaaaag attctcaaat gtataaagtc ttagaacaaa agaattcttt 2040  
 gaaataaaaa tattatatat aaaagtaaaa aaaaaa 2076

<210> 164

<211> 476

<212> PRT

<213> Homo sapiens

<400> 164

Met Val Gly Ala Met Trp Lys Val Ile Val Ser Leu Val Leu Leu Met  
 1 5 10 15

Pro Gly Pro Cys Asp Gly Leu Phe Arg Ser Leu Tyr Arg Ser Val Ser  
 20 25 30

Met Pro Pro Lys Gly Asp Ser Gly Gln Pro Leu Phe Leu Thr Pro Tyr  
 35 40 45

Ile Glu Ala Gly Lys Ile Gln Lys Gly Arg Glu Leu Ser Leu Val Gly  
 50 55 60

Pro Phe Pro Gly Leu Asn Met Lys Ser Tyr Ala Gly Phe Leu Thr Val

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Asn | Lys | Thr | Tyr | Asn | Ser | Asn | Leu | Phe | Phe | Trp | Phe | Phe | Pro | Ala | Gln |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Gln | Pro | Glu | Asp | Ala | Pro | Val | Val | Leu | Trp | Leu | Gln | Gly | Gly | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly | Gly | Ser | Ser | Met | Phe | Gly | Leu | Phe | Val | Glu | His | Gly | Pro | Tyr | Val |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Thr | Ser | Asn | Met | Thr | Leu | Arg | Asp | Arg | Asp | Phe | Pro | Trp | Thr | Thr |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Thr | Leu | Ser | Met | Leu | Tyr | Ile | Asp | Asn | Pro | Val | Gly | Thr | Gly | Phe | Ser |
| 145 |     |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |
| Phe | Thr | Asp | Asp | Thr | His | Gly | Tyr | Ala | Val | Asn | Glu | Asp | Asp | Val | Ala |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Arg | Asp | Leu | Tyr | Ser | Ala | Leu | Ile | Gln | Phe | Phe | Gln | Ile | Phe | Pro | Glu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Tyr | Lys | Asn | Asn | Asp | Phe | Tyr | Val | Thr | Gly | Glu | Ser | Tyr | Ala | Gly | Lys |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Tyr | Val | Pro | Ala | Ile | Ala | His | Leu | Ile | His | Ser | Leu | Asn | Pro | Val | Arg |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Glu | Val | Lys | Ile | Asn | Leu | Asn | Gly | Ile | Ala | Ile | Gly | Asp | Gly | Tyr | Ser |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |
| Asp | Pro | Glu | Ser | Ile | Ile | Gly | Gly | Tyr | Ala | Glu | Phe | Leu | Tyr | Gln | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Leu | Leu | Asp | Glu | Lys | Gln | Lys | Lys | Tyr | Phe | Gln | Lys | Gln | Cys | His |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Cys | Ile | Glu | His | Ile | Arg | Lys | Gln | Asn | Trp | Phe | Glu | Ala | Phe | Glu |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ile | Leu | Asp | Lys | Leu | Leu | Asp | Gly | Asp | Leu | Thr | Ser | Asp | Pro | Ser | Tyr |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Phe | Gln | Asn | Val | Thr | Gly | Cys | Ser | Asn | Tyr | Tyr | Asn | Phe | Leu | Arg | Cys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Thr | Glu | Pro | Glu | Asp | Gln | Leu | Tyr | Tyr | Val | Lys | Phe | Leu | Ser | Leu | Pro |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Glu | Val | Arg | Gln | Ala | Ile | His | Val | Gly | Asn | Gln | Thr | Phe | Asn | Asp | Gly |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |

Thr Ile Val Glu Lys Tyr Leu Arg Glu Asp Thr Val Gln Ser Val Lys  
 355 360 365

Pro Trp Leu Thr Glu Ile Met Asn Asn Tyr Lys Val Leu Ile Tyr Asn  
 370 375 380

Gly Gln Leu Asp Ile Ile Val Ala Ala Ala Leu Thr Glu Arg Ser Leu  
 385 390 395 400

Met Gly Met Asp Trp Lys Gly Ser Gln Glu Tyr Lys Lys Ala Glu Lys  
 405 410 415

Lys Val Trp Lys Ile Phe Lys Ser Asp Ser Glu Val Ala Gly Tyr Ile  
 420 425 430

Arg Gln Ala Gly Asp Phe His Gln Val Ile Ile Arg Gly Gly Gly His  
 435 440 445

Ile Leu Pro Tyr Asp Gln Pro Leu Arg Ala Phe Asp Met Ile Asn Arg  
 450 455 460

Phe Ile Tyr Gly Lys Gly Trp Asp Pro Tyr Val Gly  
 465 470 475

<210> 165

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 165

ttccatgccca cctaagggag actc

24

<210> 166

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 166

tgcatgaggt gtgcaatggc tggc

24

<210> 167

<211> 24

<212> DNA

<213> Artificial Sequence



&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 167

agctctcaga ggctgggtcat aggg

24

&lt;210&gt; 168

&lt;211&gt; 50

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 168

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50

&lt;210&gt; 169

&lt;211&gt; 2477

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 169

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<210> 170
<211> 552
<212> PRT
<213> Homo sapiens

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<400> 170

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Phe Trp Ser Asp His Ser Ala Leu Cys Phe Ala Glu Ser Cys Glu Gly
      20             25             30

Gln Pro Gly Lys Val Glu Gln Met Ser Thr His Arg Ser Arg Leu Leu
      35             40             45

Thr Ala Ala Pro Leu Ser Met Glu Gln Arg Gln Pro Trp Pro Arg Ala
      50             55             60

Leu Glu Val Asp Ser Arg Ser Val Val Leu Leu Ser Val Val Trp Val
      65             70             75             80

Leu Leu Ala Pro Pro Ala Ala Gly Met Pro Gln Phe Ser Thr Phe His
      85             90             95

Ser Glu Asn Arg Asp Trp Thr Phe Asn His Leu Thr Val His Gln Gly
      100            105            110

Thr Gly Ala Val Tyr Val Gly Ala Ile Asn Arg Val Tyr Lys Leu Thr
      115            120            125

Gly Asn Leu Thr Ile Gln Val Ala His Lys Thr Gly Pro Glu Glu Asp
      130            135            140

Asn Lys Ser Arg Tyr Pro Pro Leu Ile Val Gln Pro Cys Ser Glu Val
      145            150            155            160

Leu Thr Leu Thr Asn Asn Val Asn Lys Leu Leu Ile Ile Asp Tyr Ser
      165            170            175

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Glu Asn Arg Leu Leu Ala Cys Gly Ser Leu Tyr Gln Gly Val Cys Lys  
 180 185 190  
 Leu Leu Arg Leu Asp Asp Leu Phe Ile Leu Val Glu Pro Ser His Lys  
 195 200 205  
 Lys Glu His Tyr Leu Ser Ser Val Asn Lys Thr Gly Thr Met Tyr Gly  
 210 215 220  
 Val Ile Val Arg Ser Glu Gly Glu Asp Gly Lys Leu Phe Ile Gly Thr  
 225 230 235 240  
 Ala Val Asp Gly Lys Gln Asp Tyr Phe Pro Thr Leu Ser Ser Arg Lys  
 245 250 255  
 Leu Pro Arg Asp Pro Glu Ser Ser Ala Met Leu Asp Tyr Glu Leu His  
 260 265 270  
 Ser Asp Phe Val Ser Ser Leu Ile Lys Ile Pro Ser Asp Thr Leu Ala  
 275 280 285  
 Leu Val Ser His Phe Asp Ile Phe Tyr Ile Tyr Gly Phe Ala Ser Gly  
 290 295 300  
 Gly Phe Val Tyr Phe Leu Thr Val Gln Pro Glu Thr Pro Glu Gly Val  
 305 310 315 320  
 Ala Ile Asn Ser Ala Gly Asp Leu Phe Tyr Thr Ser Arg Ile Val Arg  
 325 330 335  
 Leu Cys Lys Asp Asp Pro Lys Phe His Ser Tyr Val Ser Leu Pro Phe  
 340 345 350  
 Gly Cys Thr Arg Ala Gly Val Glu Tyr Arg Leu Leu Gln Ala Ala Tyr  
 355 360 365  
 Leu Ala Lys Pro Gly Asp Ser Leu Ala Gln Ala Phe Asn Ile Thr Ser  
 370 375 380  
 Gln Asp Asp Val Leu Phe Ala Ile Phe Ser Lys Gly Gln Lys Gln Tyr  
 385 390 395 400  
 His His Pro Pro Asp Asp Ser Ala Leu Cys Ala Phe Pro Ile Arg Ala  
 405 410 415  
 Ile Asn Leu Gln Ile Lys Glu Arg Leu Gln Ser Cys Tyr Gln Gly Glu  
 420 425 430  
 Gly Asn Leu Glu Leu Asn Trp Leu Leu Gly Lys Asp Val Gln Cys Thr  
 435 440 445  
 Lys Ala Pro Val Pro Ile Asp Asp Asn Phe Cys Gly Leu Asp Ile Asn

|   |     |     |     |         |
|---|-----|-----|-----|---------|
| 450   |     | 455 |     | 460     |
| Gln Pro Leu Gly Gly Ser Thr Pro Val Glu Gly Leu Thr Leu Tyr Thr |     |     |     |         |
| 465   |     | 470 |     | 475 480 |
| Thr Ser Arg Asp Arg Met Thr Ser Val Ala Ser Tyr Val Tyr Asn Gly |     |     |     |         |
|   | 485 |     | 490 | 495     |
| Tyr Ser Val Val Phe Val Gly Thr Lys Ser Gly Lys Leu Lys Lys Val |     |     |     |         |
|   | 500 |     | 505 | 510     |
| Arg Val Tyr Glu Phe Arg Cys Ser Asn Ala Ile His Leu Leu Ser Lys |     |     |     |         |
|   | 515 |     | 520 | 525     |
| Glu Ser Leu Leu Glu Gly Ser Tyr Trp Trp Arg Phe Asn Tyr Arg Gln |     |     |     |         |
|   | 530 |     | 535 | 540     |
| Leu Tyr Phe Leu Gly Glu Gln Arg                                 |     |     |     |         |
| 545   |     | 550 |     |         |

&lt;210&gt; 171

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 171

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20

&lt;210&gt; 172

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 172

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24

&lt;210&gt; 173

&lt;211&gt; 43

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

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42

<210> 174  
<211> 3106  
<212> DNA  
<213> Homo sapiens

<220>  
<221> modified\_base  
<222> (1683)  
<223> a, t, c or g

<400> 174  
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aacacgcgat gaccacgtgg agcctccggc ggaggccggc ccgcacgctg ggactcctgc 120  
tgctggctcg cttgggcttc ctgggtgctc gcaggttggc ctggagcacc ctgggtccctc 180  
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<210> 175
<211> 636
<212> PRT
<213> Homo sapiens
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| <400> 175 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met       | Thr | Thr | Trp | Ser | Leu | Arg | Arg | Arg | Pro | Ala | Arg | Thr | Leu | Gly | Leu |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu       | Leu | Leu | Val | Val | Leu | Gly | Phe | Leu | Val | Leu | Arg | Arg | Leu | Asp | Trp |
|           |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ser       | Thr | Leu | Val | Pro | Leu | Arg | Leu | Arg | His | Arg | Gln | Leu | Gly | Leu | Gln |
|           |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala       | Lys | Gly | Trp | Asn | Phe | Met | Leu | Glu | Asp | Ser | Thr | Phe | Trp | Ile | Phe |
|           | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly       | Gly | Ser | Ile | His | Tyr | Phe | Arg | Val | Pro | Arg | Glu | Tyr | Trp | Arg | Asp |
| 65        |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Arg       | Leu | Leu | Lys | Met | Lys | Ala | Cys | Gly | Leu | Asn | Thr | Leu | Thr | Thr | Tyr |
|           |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val       | Pro | Trp | Asn | Leu | His | Glu | Pro | Glu | Arg | Gly | Lys | Phe | Asp | Phe | Ser |
|           |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Gly       | Asn | Leu | Asp | Leu | Glu | Ala | Phe | Val | Leu | Met | Ala | Ala | Glu | Ile | Gly |
|           |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu       | Trp | Val | Ile | Leu | Arg | Pro | Gly | Pro | Tyr | Ile | Cys | Ser | Glu | Met | Asp |
|           | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |

Leu Gly Gly Leu Pro Ser Trp Leu Leu Gln Asp Pro Gly Met Arg Leu  
 145 150 155 160  
 Arg Thr Thr Tyr Lys Gly Phe Thr Glu Ala Val Asp Leu Tyr Phe Asp  
 165 170 175  
 His Leu Met Ser Arg Val Val Pro Leu Gln Tyr Lys Arg Gly Gly Pro  
 180 185 190  
 Ile Ile Ala Val Gln Val Glu Asn Glu Tyr Gly Ser Tyr Asn Lys Asp  
 195 200 205  
 Pro Ala Tyr Met Pro Tyr Val Lys Lys Ala Leu Glu Asp Arg Gly Ile  
 210 215 220  
 Val Glu Leu Leu Leu Thr Ser Asp Asn Lys Asp Gly Leu Ser Lys Gly  
 225 230 235 240  
 Ile Val Gln Gly Val Leu Ala Thr Ile Asn Leu Gln Ser Thr His Glu  
 245 250 255  
 Leu Gln Leu Leu Thr Thr Phe Leu Phe Asn Val Gln Gly Thr Gln Pro  
 260 265 270  
 Lys Met Val Met Glu Tyr Trp Thr Gly Trp Phe Asp Ser Trp Gly Gly  
 275 280 285  
 Pro His Asn Ile Leu Asp Ser Ser Glu Val Leu Lys Thr Val Ser Ala  
 290 295 300  
 Ile Val Asp Ala Gly Ser Ser Ile Asn Leu Tyr Met Phe His Gly Gly  
 305 310 315 320  
 Thr Asn Phe Gly Phe Met Asn Gly Ala Met His Phe His Asp Tyr Lys  
 325 330 335  
 Ser Asp Val Thr Ser Tyr Asp Tyr Asp Ala Val Leu Thr Glu Ala Gly  
 340 345 350  
 Asp Tyr Thr Ala Lys Tyr Met Lys Leu Arg Asp Phe Phe Gly Ser Ile  
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 Ser Gly Ile Pro Leu Pro Pro Pro Pro Asp Leu Leu Pro Lys Met Pro  
 370 375 380  
 Tyr Glu Pro Leu Thr Pro Val Leu Tyr Leu Ser Leu Trp Asp Ala Leu  
 385 390 395 400  
 Lys Tyr Leu Gly Glu Pro Ile Lys Ser Glu Lys Pro Ile Asn Met Glu  
 405 410 415  
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 420 425 430

145 150 155 160  
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 225 230 235 240  
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 290 295 300  
 305 310 315 320  
 325 330 335  
 340 345 350  
 355 360 365  
 370 375 380  
 385 390 395 400  
 405 410 415  
 420 425 430

Tyr Glu Thr Ser Ile Thr Ser Ser Gly Ile Leu Ser Gly His Val His  
435 440 445

Asp Arg Gly Gln Val Phe Val Asn Thr Val Ser Ile Gly Phe Leu Asp  
450 455 460

Tyr Lys Thr Thr Lys Ile Ala Val Pro Leu Ile Gln Gly Tyr Thr Val  
465 470 475 480

Leu Arg Ile Leu Val Glu Asn Arg Gly Arg Val Asn Tyr Gly Glu Asn  
485 490 495

Ile Asp Asp Gln Arg Lys Gly Leu Ile Gly Asn Leu Tyr Leu Asn Asp  
500 505 510

Ser Pro Leu Lys Asn Phe Arg Ile Tyr Ser Leu Asp Met Lys Lys Ser  
515 520 525

Phe Phe Gln Arg Phe Gly Leu Asp Lys Trp Xaa Ser Leu Pro Glu Thr  
530 535 540

Pro Thr Leu Pro Ala Phe Phe Leu Gly Ser Leu Ser Ile Ser Ser Thr  
545 550 555 560

Pro Cys Asp Thr Phe Leu Lys Leu Glu Gly Trp Glu Lys Gly Val Val  
565 570 575

Phe Ile Asn Gly Gln Asn Leu Gly Arg Tyr Trp Asn Ile Gly Pro Gln  
580 585 590

Lys Thr Leu Tyr Leu Pro Gly Pro Trp Leu Ser Ser Gly Ile Asn Gln  
595 600 605

Val Ile Val Phe Glu Glu Thr Met Ala Gly Pro Ala Leu Gln Phe Thr  
610 615 620

Glu Thr Pro His Leu Gly Arg Asn Gln Tyr Ile Lys  
625 630 635

<210> 176

<211> 2505

<212> DNA

<213> Homo sapiens

<400> 176

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<210> 177

<211> 654

<212> PRT

<213> Homo sapiens

<400> 177

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Asp Arg Gly His Asp Arg Phe Leu Leu Asp Gly Ala Pro Phe Arg Tyr  
 35 40 45

Val Ser Gly Ser Leu His Tyr Phe Arg Val Pro Arg Val Leu Trp Ala  
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Asp Arg Leu Leu Lys Met Arg Trp Ser Gly Leu Asn Ala Ile Gln Phe  
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 Lys Val Leu Leu Pro Lys Ile Tyr Pro Trp Leu Tyr His Asn Gly Gly  
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 180 185 190  
 Cys Asp Phe Ser Tyr Met Arg His Leu Ala Gly Leu Phe Arg Ala Leu  
 195 200 205  
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 Ala Asp Asn Met Thr Lys Ile Phe Thr Leu Leu Arg Lys Tyr Glu Pro  
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 260 265 270  
 Trp Gly Gln Asn His Ser Thr Arg Ser Val Ser Ala Val Thr Lys Gly  
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 His Gly Gly Thr Asn Phe Gly Tyr Trp Asn Gly Ala Asp Lys Lys Gly  
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 Arg Phe Leu Pro Ile Thr Thr Ser Tyr Asp Tyr Asp Ala Pro Ile Ser  
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[illegible]

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<210> 178

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 178

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24

<210> 179

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 179

tggacaaatc cccttgctca gccc

24

<210> 180

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 180

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<210> 181

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 181

ccagctatga ctatgatgca cc

22

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<210> 182

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

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24

<210> 183

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

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<210> 184

<211> 1947

<212> DNA

<213> Homo sapiens

<400> 184

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<210> 185
<211> 501
<212> PRT
<213> Homo sapiens
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Met Val Asp Gln Tyr Asp Gln Leu Tyr Ser Lys Arg Phe Gly Val Phe  
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Glu Trp Thr Phe Glu Lys Leu Arg Gln His Ile Ser Arg Asn Ala Gln  
100 105 110

Val Phe Asp Leu Thr Asp Leu Asp Val Leu Lys Leu Glu Leu Ile Pro  
130 135 140

Leu His Leu Cys His Cys Pro Ala Lys Val Glu Gln Thr Ala Phe Ser  
165 170 175

Phe Leu Arg Asp His Leu Arg Cys Leu His Val Lys Phe Thr Asp Val  
180 185 190

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| 195 |     |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Tyr | Leu | Ile | Gly | Asn | Leu | Asn | Ser | Glu | Asn | Asn | Lys | Met | Ile | Gly | Leu |
| 210 |     |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Glu | Ser | Leu | Arg | Glu | Leu | Arg | His | Leu | Lys | Ile | Leu | His | Val | Lys | Ser |
| 225 |     |     |     |     |     | 230 |     |     |     |     |     | 240 |     |     |     |
| Asn | Leu | Thr | Lys | Val | Pro | Ser | Asn | Ile | Thr | Asp | Val | Ala | Pro | His | Leu |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     | 255 |     |     |     |
| Thr | Lys | Leu | Val | Ile | His | Asn | Asp | Gly | Thr | Lys | Leu | Leu | Val | Leu | Asn |
|     |     |     | 260 |     |     |     |     |     | 265 |     |     | 270 |     |     |     |
| Ser | Leu | Lys | Lys | Met | Met | Asn | Val | Ala | Glu | Leu | Glu | Leu | Gln | Asn | Cys |
| 275 |     |     |     |     |     | 280 |     |     |     |     |     | 285 |     |     |     |
| Glu | Leu | Glu | Arg | Ile | Pro | His | Ala | Ile | Phe | Ser | Leu | Ser | Asn | Leu | Gln |
| 290 |     |     |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |
| Glu | Leu | Asp | Leu | Lys | Ser | Asn | Asn | Ile | Arg | Thr | Ile | Glu | Glu | Ile | Ile |
| 305 |     |     |     |     |     | 310 |     |     |     |     |     | 320 |     |     |     |
| Ser | Phe | Gln | His | Leu | Lys | Arg | Leu | Thr | Cys | Leu | Lys | Leu | Trp | His | Asn |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     | 335 |     |     |     |
| Lys | Ile | Val | Thr | Ile | Pro | Pro | Ser | Ile | Thr | His | Val | Lys | Asn | Leu | Glu |
|     |     |     | 340 |     |     |     |     |     | 345 |     |     | 350 |     |     |     |
| Ser | Leu | Tyr | Phe | Ser | Asn | Asn | Lys | Leu | Glu | Ser | Leu | Pro | Val | Ala | Val |
| 355 |     |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |
| Phe | Ser | Leu | Gln | Lys | Leu | Arg | Cys | Leu | Asp | Val | Ser | Tyr | Asn | Asn | Ile |
| 370 |     |     |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |
| Ser | Met | Ile | Pro | Ile | Glu | Ile | Gly | Leu | Leu | Gln | Asn | Leu | Gln | His | Leu |
| 385 |     |     |     |     |     | 390 |     |     |     |     |     | 395 |     |     |     |
| His | Ile | Thr | Gly | Asn | Lys | Val | Asp | Ile | Leu | Pro | Lys | Gln | Leu | Phe | Lys |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     | 415 |     |     |     |
| Cys | Ile | Lys | Leu | Arg | Thr | Leu | Asn | Leu | Gly | Gln | Asn | Cys | Ile | Thr | Ser |
|     |     |     | 420 |     |     |     |     |     | 425 |     |     | 430 |     |     |     |
| Leu | Pro | Glu | Lys | Val | Gly | Gln | Leu | Ser | Gln | Leu | Thr | Gln | Leu | Glu | Leu |
| 435 |     |     |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |
| Lys | Gly | Asn | Cys | Leu | Asp | Arg | Leu | Pro | Ala | Gln | Leu | Gly | Gln | Cys | Arg |
| 450 |     |     |     |     |     | 455 |     |     |     |     |     | 460 |     |     |     |
| Met | Leu | Lys | Lys | Ser | Gly | Leu | Val | Val | Glu | Asp | His | Leu | Phe | Asp | Thr |

465                      470                      475                      480  
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<220>  
 <223> Description of Artificial Sequence: Synthetic  
                          oligonucleotide probe

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<210> 187  
 <211> 24  
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<220>  
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                          oligonucleotide probe

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                          oligonucleotide probe

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 <213> Homo sapiens

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 aagacatttg tgttttacac acataaggat ctgtgtttg gggtttctct tcctcccctg 180

465 470 475 480 485 490 495 500



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&lt;210&gt; 190

&lt;211&gt; 607

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 190

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| Met<br>1 | Glu | Leu | Val | Arg | 5   | Arg | Leu | Met | Pro | Leu | Thr | Leu | Leu | Ile | Leu | Ser |
| Cys      | Leu | Ala | Glu | Leu | Thr | Met | Ala | Glu | Ala | Glu | Gly | Asn | Ala | Ser | Cys |     |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |
| Thr      | Val | Ser | Leu | Gly | Gly | Ala | Asn | Met | Ala | Glu | Thr | His | Lys | Ala | Met |     |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ile      | Leu | Gln | Leu | Asn | Pro | Ser | Glu | Asn | Cys | Thr | Trp | Thr | Ile | Glu | Arg |     |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Pro      | Glu | Asn | Lys | Ser | Ile | Arg | Ile | Ile | Phe | Ser | Tyr | Val | Gln | Leu | Asp |     |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Pro      | Asp | Gly | Ser | Cys | Glu | Ser | Glu | Asn | Ile | Lys | Val | Phe | Asp | Gly | Thr |     |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Ser      | Ser | Asn | Gly | Pro | Leu | Leu | Gly | Gln | Val | Cys | Ser | Lys | Asn | Asp | Tyr |     |
|          |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Val      | Pro | Val | Phe | Glu | Ser | Ser | Ser | Ser | Thr | Leu | Thr | Phe | Gln | Ile | Val |     |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Thr      | Asp | Ser | Ala | Arg | Ile | Gln | Arg | Thr | Val | Phe | Val | Phe | Tyr | Tyr | Phe |     |
|          | 130 |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |     |     |
| Phe      | Ser | Pro | Asn | Ile | Ser | Ile | Pro | Asn | Cys | Gly | Gly | Tyr | Leu | Asp | Thr |     |
| 145      |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |     |
| Leu      | Glu | Gly | Ser | Phe | Thr | Ser | Pro | Asn | Tyr | Pro | Lys | Pro | His | Pro | Glu |     |
|          |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Leu      | Ala | Tyr | Cys | Val | Trp | His | Ile | Gln | Val | Glu | Lys | Asp | Tyr | Lys | Ile |     |
|          |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| Lys      | Leu | Asn | Phe | Lys | Glu | Ile | Phe | Leu | Glu | Ile | Asp | Lys | Gln | Cys | Lys |     |
|          |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| Phe      | Asp | Phe | Leu | Ala | Ile | Tyr | Asp | Gly | Pro | Ser | Thr | Asn | Ser | Gly | Leu |     |
|          | 210 |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     |     |
| Ile      | Gly | Gln | Val | Cys | Gly | Arg | Val | Thr | Pro | Thr | Phe | Glu | Ser | Ser | Ser |     |
| 225      |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |     |
| Asn      | Ser | Leu | Thr | Val | Val | Leu | Ser | Thr | Asp | Tyr | Ala | Asn | Ser | Tyr | Arg |     |
|          |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| Gly      | Phe | Ser | Ala | Ser | Tyr | Thr | Ser | Ile | Tyr | Ala | Glu | Asn | Ile | Asn | Thr |     |
|          |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| Thr      | Ser | Leu | Thr | Cys | Ser | Ser | Asp | Arg | Met | Arg | Val | Ile | Ile | Ser | Lys |     |
|          |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |

Ser Tyr Leu Glu Ala Phe Asn Ser Asn Gly Asn Asn Leu Gln Leu Lys  
 290 295 300  
 Asp Pro Thr Cys Arg Pro Lys Leu Ser Asn Val Val Glu Phe Ser Val  
 305 310 315 320  
 Pro Leu Asn Gly Cys Gly Thr Ile Arg Lys Val Glu Asp Gln Ser Ile  
 325 330 335  
 Thr Tyr Thr Asn Ile Ile Thr Phe Ser Ala Ser Ser Thr Ser Glu Val  
 340 345 350  
 Ile Thr Arg Gln Lys Gln Leu Gln Ile Ile Val Lys Cys Glu Met Gly  
 355 360 365  
 His Asn Ser Thr Val Glu Ile Ile Tyr Ile Thr Glu Asp Asp Val Ile  
 370 375 380  
 Gln Ser Gln Asn Ala Leu Gly Lys Tyr Asn Thr Ser Met Ala Leu Phe  
 385 390 395 400  
 Glu Ser Asn Ser Phe Glu Lys Thr Ile Leu Glu Ser Pro Tyr Tyr Val  
 405 410 415  
 Asp Leu Asn Gln Thr Leu Phe Val Gln Val Ser Leu His Thr Ser Asp  
 420 425 430  
 Pro Asn Leu Val Val Phe Leu Asp Thr Cys Arg Ala Ser Pro Thr Ser  
 435 440 445  
 Asp Phe Ala Ser Pro Thr Tyr Asp Leu Ile Lys Ser Gly Cys Ser Arg  
 450 455 460  
 Asp Glu Thr Cys Lys Val Tyr Pro Leu Phe Gly His Tyr Gly Arg Phe  
 465 470 475 480  
 Gln Phe Asn Ala Phe Lys Phe Leu Arg Ser Met Ser Ser Val Tyr Leu  
 485 490 495  
 Gln Cys Lys Val Leu Ile Cys Asp Ser Ser Asp His Gln Ser Arg Cys  
 500 505 510  
 Asn Gln Gly Cys Val Ser Arg Ser Lys Arg Asp Ile Ser Ser Tyr Lys  
 515 520 525  
 Trp Lys Thr Asp Ser Ile Ile Gly Pro Ile Arg Leu Lys Arg Asp Arg  
 530 535 540  
 Ser Ala Ser Gly Asn Ser Gly Phe Gln His Glu Thr His Ala Glu Glu  
 545 550 555 560  
 Thr Pro Asn Gln Pro Phe Asn Ser Val His Leu Phe Ser Phe Met Val

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 565 |     | 570 |     | 575 |     |     |     |     |     |     |     |     |     |     |
| Leu | Ala | Leu | Asn | Val | Val | Thr | Val | Ala | Thr | Ile | Thr | Val | Arg | His | Phe |
|     |     | 580 |     |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Val | Asn | Gln | Arg | Ala | Asp | Tyr | Lys | Tyr | Gln | Lys | Leu | Gln | Asn | Tyr |     |
|     | 595 |     |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |

<210> 191  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 191  
 tctctattcc aaactgtggc g 21

<210> 192  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 192  
 tttgatgacg attcgaagggt gg 22

<210> 193  
 <211> 47  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 193  
 ggaaggatcc ttcaccagcc ccaattaccc aaagccgcac cctgagc 47

<210> 194  
 <211> 2362  
 <212> DNA  
 <213> Homo sapiens

<400> 194  
 gacggaagaa cagcgctccc gagggcgcgg gagcctgcag agaggacagc cggcctgcgc 60  
 cgggacatgc ggccccagga gtcctccagg ctgcggttcc cggtgctgct gttgctgttg 120  
 ctgctgctgc cgccgcgcgc gtgccttgcc cacagcgcca cgcgcttcga cccacactgg 180

gagtccttgg acgcccccca gctgccccgg tggtttgacc aggccaaagt cggcatcttc 240  
 atccactggg gagtggttttc cgtgcccagc ttcggtagcg agtggttctg gtggtatttg 300  
 caaaaggaaa agataccgaa gtatgtggaa tttatgaaag ataattacc tcttagtttc 360  
 aaatatgaag attttggacc actatttaca gcaaaatttt ttaatgcca ccagtgggca 420  
 gatatttttc aggcctctgg tgccaaatac attgtcttaa ctccaaaca tcatgaaggc 480  
 ttaccttgt ggggggtcaga atattcgtgg aactggaatg ccatagatga gggggcccaag 540  
 agggacattg tcaaggaaact tgaggtagcc attaggaaca gaactgacct gcgttttgga 600  
 ctgtactatt ccctttttga atggtttcat ccgctcttcc ttgaggatga atccagttca 660  
 ttccataagc ggcaatttcc agtttctaag acattgccag agctctatga gttagtgaac 720  
 aactatcagc ctgaggttct gtggtcggat ggtgacggag gagcaccgga tcaatactgg 780  
 aacagcacag gcttcttggc ctgggtatat aatgaaagcc cagttcgggg cacagtagtc 840  
 accaatgatc gttggggagc tggtagcatc tgtaagcatg gtggcttcta tacctgcagt 900  
 gatcggtata acccaggaca tcttttgcca cataaatggg aaaactgcat gacaatagac 960  
 aaactgtcct ggggctatag gagggaaagt ggaatctctg actatcttac aattgaagaa 1020  
 ttggtgaagc aacttgtaga gacagtttca tgtggaggaa atcttttgat gaatttggg 1080  
 cccacactag atggcaccat ttctgtagtt tttgaggagc gactgaggca agtgggggtcc 1140  
 tggctaaaag tcaatggaga agctatttat gaaacctata cctggcgatc ccagaatgac 1200  
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 aatggcatta tggtagaact gccacagcta accattcadc agatgccgtg taaatggggc 1440  
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 cattgatttg tttccatgtg tgactcagag gtgagaattt tttcacatta tagtagcaag 1740  
 gaattgggtg tattatggac cgaactgaaa attttatgtt gaagccatat ccccatgat 1800  
 tatatagtta tgcactactt aatatgggga tttttcttgg gaaatgcatt gctagtcaat 1860  
 ttttttttgt gccaacatca tagagtgtat ttacaaaatc ctagatggca tagcctacta 1920  
 cacaccta atgtatggta tagactgttg ctcttaggct acagacatat acagcatgtt 1980  
 actgaatact gtaggcaata gtaacagtgg tatttgtata tcgaaacata tggaaacata 2040  
 gagaaggtag agtaaaaata ctgtaaaata aatgggtgcac ctgtataggg cacttaccac 2100  
 gaatggagct tacaggactg gaagttgtct tgggtgagtc agtgagtga tgtgaaggcc 2160  
 taggacatta ttgaacactg ccagacgtta taaatactgt atgcttaggc tacactacat 2220  
 ttataaaaaa aagtttttct ttcttcaatt ataaattaac ataagtgtac tgtaacttta 2280  
 caaacgtttt aattttttaa accttttttg ctcttttgta ataactta gcttaaaaca 2340  
 taaactcatt gtgcaaatgt aa 2362

<210> 195

<211> 467

<212> PRT

<213> Homo sapiens

<400> 195

Met Arg Pro Gln Glu Leu Pro Arg Leu Ala Phe Pro Leu Leu Leu Leu  
 1 5 10 15

Leu Leu Leu Leu Leu Pro Pro Pro Pro Cys Pro Ala His Ser Ala Thr  
 20 25 30

Arg Phe Asp Pro Thr Trp Glu Ser Leu Asp Ala Arg Gln Leu Pro Ala  
 35 40 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Phe | Asp | Gln | Ala | Lys | Phe | Gly | Ile | Phe | Ile | His | Trp | Gly | Val | Phe |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Val | Pro | Ser | Phe | Gly | Ser | Glu | Trp | Phe | Trp | Trp | Tyr | Trp | Gln | Lys |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Lys | Ile | Pro | Lys | Tyr | Val | Glu | Phe | Met | Lys | Asp | Asn | Tyr | Pro | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Phe | Lys | Tyr | Glu | Asp | Phe | Gly | Pro | Leu | Phe | Thr | Ala | Lys | Phe | Phe |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Ala | Asn | Gln | Trp | Ala | Asp | Ile | Phe | Gln | Ala | Ser | Gly | Ala | Lys | Tyr |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Val | Leu | Thr | Ser | Lys | His | His | Glu | Gly | Phe | Thr | Leu | Trp | Gly | Ser |
| 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Glu | Tyr | Ser | Trp | Asn | Trp | Asn | Ala | Ile | Asp | Glu | Gly | Pro | Lys | Arg | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Ile | Val | Lys | Glu | Leu | Glu | Val | Ala | Ile | Arg | Asn | Arg | Thr | Asp | Leu | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Phe | Gly | Leu | Tyr | Tyr | Ser | Leu | Phe | Glu | Trp | Phe | His | Pro | Leu | Phe | Leu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Glu | Asp | Glu | Ser | Ser | Ser | Phe | His | Lys | Arg | Gln | Phe | Pro | Val | Ser | Lys |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Leu | Pro | Glu | Leu | Tyr | Glu | Leu | Val | Asn | Asn | Tyr | Gln | Pro | Glu | Val |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Trp | Ser | Asp | Gly | Asp | Gly | Gly | Ala | Pro | Asp | Gln | Tyr | Trp | Asn | Ser |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Thr | Gly | Phe | Leu | Ala | Trp | Leu | Tyr | Asn | Glu | Ser | Pro | Val | Arg | Gly | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Val | Val | Thr | Asn | Asp | Arg | Trp | Gly | Ala | Gly | Ser | Ile | Cys | Lys | His | Gly |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gly | Phe | Tyr | Thr | Cys | Ser | Asp | Arg | Tyr | Asn | Pro | Gly | His | Leu | Leu | Pro |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| His | Lys | Trp | Glu | Asn | Cys | Met | Thr | Ile | Asp | Lys | Leu | Ser | Trp | Gly | Tyr |
| 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Arg | Arg | Glu | Ala | Gly | Ile | Ser | Asp | Tyr | Leu | Thr | Ile | Glu | Glu | Leu | Val |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Lys | Gln | Leu | Val | Glu | Thr | Val | Ser | Cys | Gly | Gly | Asn | Leu | Leu | Met | Asn |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |

Ile Gly Pro Thr Leu Asp Gly Thr Ile Ser Val Val Phe Glu Glu Arg  
                   340                                  345                                  350

Leu Arg Gln Val Gly Ser Trp Leu Lys Val Asn Gly Glu Ala Ile Tyr  
                   355                                  360                                  365

Glu Thr Tyr Thr Trp Arg Ser Gln Asn Asp Thr Val Thr Pro Asp Val  
                   370                                  375                                  380

Trp Tyr Thr Ser Lys Pro Lys Glu Lys Leu Val Tyr Ala Ile Phe Leu  
                   385                                  390                                  395                                  400

Lys Trp Pro Thr Ser Gly Gln Leu Phe Leu Gly His Pro Lys Ala Ile  
                                   405                                  410                                  415

Leu Gly Ala Thr Glu Val Lys Leu Leu Gly His Gly Gln Pro Leu Asn  
                                   420                                  425                                  430

Trp Ile Ser Leu Glu Gln Asn Gly Ile Met Val Glu Leu Pro Gln Leu  
                   435                                  440                                  445

Thr Ile His Gln Met Pro Cys Lys Trp Gly Trp Ala Leu Ala Leu Thr  
                   450                                  455                                  460

Asn Val Ile  
 465

<210> 196

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 196

tggtttgacc aggccaagtt cgg

23

<210> 197

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 197

ggattcatcc tcaaggaaga gcgg

24

<210> 198

<211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 198  
 aacttgccgc atcagccact ctgc

24

<210> 199  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 199  
 ttccgtgccc agcttcggta gcgagtggtt ctggtggtat tggca

45

<210> 200  
 <211> 2372  
 <212> DNA  
 <213> Homo sapiens

<400> 200  
 agcagggaaa tccggatgtc tccggttatga agtggagcag tgagtgtgag cctcaacata 60  
 gttccagaac tctccatccg gactagttat tgagcatctg cctctcatat caccagtggc 120  
 catctgaggt gtttccctgg ctctgaaggg gtaggcacga tggccagggtg cttcagcctg 180  
 gtgttgcttc tcaactccat ctggaccacg aggtccttg tccaaggctc tttgcgtgca 240  
 gaagagcttt ccatccagggt gtcatgcaga attatgggga tcacccttgt gagcaaaaag 300  
 gcgaaccagc agctgaattt cacagaagct aaggaggcct gtaggctgct gggactaagt 360  
 ttggccggga aggaccaagt tgaaacagcc ttgaaagcta gctttgaaac ttgcagctat 420  
 ggctgggttg gagatggatt cgtgggtcatc tctaggatta gcccacaccc caagtgtggg 480  
 aaaaatgggg tgggtgtcct gatttggaag gttccagtga gccgacagtt tgcagcctat 540  
 tgttacaact catctgatac ttggactaac tcgtgcattc cagaaattat caccacccaa 600  
 gatcccatat tcaacactca aactgcaaca caaacaacag aatttattgt cagtgcagct 660  
 acctactcgg tggcatcccc ttactctaca atacctgccc ctactactac tcctcctgct 720  
 ccagcttcca cttctattcc acggagaaaa aaattgattt gtgtcacaga agtttttatg 780  
 gaaactagca ccatgtctac agaaactgaa ccatttggtg aaaataaagc agcattcaag 840  
 aatgaagctg ctgggttttg aggtgtcccc acggctctgc tagtgcttgc tctcctcttc 900  
 tttggtgctg cagctgggtc tggattttgc tatgtcaaaa ggtatgtgaa ggccttccct 960  
 ttacaaaaca agaatcagca gaaggaaatg atcgaaacca aagtagtaaa ggaggagaag 1020  
 gccaatgata gcaaccctaa tgaggaatca aagaaaactg ataaaaaccc agaagagtcc 1080  
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 cctgtctgga tcctatcctc ctacctccaa agcttcccac ggcctttcta gcctggctat 1380  
 gtccctaata tatcccactg ggagaaagga gttttgcaaa gtgcaaggac ctaaaacatc 1440



```

tcatcagtat ccagtggtaa aaaggcctcc tggctgtctg aggctaggtg ggttgaaagc 1500
caaggagtca ctgagaccaa ggctttctct actgattccg cagctcagac cctttcttca 1560
gctctgaaag agaaacacgt atcccacctg acatgtcctt ctgagcccg taagagcaaa 1620
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gcagggactg taaacacaga cagggtcaaa gtgttttctc tgaacacatt gagttggaat 1800
cactgttttag aacacacaca cttacttttt ctggtctcta cactgctga tttttctct 1860
aggaaatata cttttacaag taacaaaaat aaaaactctt ataaatttct atttttatct 1920
gagttacaga aatgattact aaggaagatt actcagtaat ttgtttaaaa agtaataaaa 1980
ttcaacaaac atttgctgaa tagctactat atgtcaagt ctgtgcaagg tattacactc 2040
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ttttttcagt ttgatattt ctagcttata tacttccaaa ctaattttta tttttgctga 2160
gactaatctt attcattttc tctaatatgg caaccattat aaccttaatt tattattaac 2220
atacctaaga agtacattgt tacctctata taccaaagca catttttaaaa gtgccattaa 2280
caaatgtatc actagccctc ctttttccaa caagaaggga ctgagagatg cagaaatatt 2340
tgtgacaaaa aattaaagca tttagaaaac tt 2372

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<210> 201

<211> 322

<212> PRT

<213> Artificial sequence

<220>

<223> Synthetic protein

<400> 201

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Met Ala Arg Cys Phe Ser Leu Val Leu Leu Leu Thr Ser Ile Trp Thr
  1             5             10             15

```

```

Thr Arg Leu Leu Val Gln Gly Ser Leu Arg Ala Glu Glu Leu Ser Ile
      20             25             30

```

```

Gln Val Ser Cys Arg Ile Met Gly Ile Thr Leu Val Ser Lys Lys Ala
      35             40             45

```

```

Asn Gln Gln Leu Asn Phe Thr Glu Ala Lys Glu Ala Cys Arg Leu Leu
      50             55             60

```

```

Gly Leu Ser Leu Ala Gly Lys Asp Gln Val Glu Thr Ala Leu Lys Ala
      65             70             75             80

```

```

Ser Phe Glu Thr Cys Ser Tyr Gly Trp Val Gly Asp Gly Phe Val Val
      85             90             95

```

```

Ile Ser Arg Ile Ser Pro Asn Pro Lys Cys Gly Lys Asn Gly Val Gly
      100            105            110

```

```

Val Leu Ile Trp Lys Val Pro Val Ser Arg Gln Phe Ala Ala Tyr Cys
      115            120            125

```

```

Tyr Asn Ser Ser Asp Thr Trp Thr Asn Ser Cys Ile Pro Glu Ile Ile
      130            135            140

```

Thr Thr Lys Asp Pro Ile Phe Asn Thr Gln Thr Ala Thr Gln Thr Thr  
 145 150 155 160  
 Glu Phe Ile Val Ser Asp Ser Thr Tyr Ser Val Ala Ser Pro Tyr Ser  
 165 170 175  
 Thr Ile Pro Ala Pro Thr Thr Thr Pro Pro Ala Pro Ala Ser Thr Ser  
 180 185 190  
 Ile Pro Arg Arg Lys Lys Leu Ile Cys Val Thr Glu Val Phe Met Glu  
 195 200 205  
 Thr Ser Thr Met Ser Thr Glu Thr Glu Pro Phe Val Glu Asn Lys Ala  
 210 215 220  
 Ala Phe Lys Asn Glu Ala Ala Gly Phe Gly Gly Val Pro Thr Ala Leu  
 225 230 235 240  
 Leu Val Leu Ala Leu Leu Phe Phe Gly Ala Ala Ala Gly Leu Gly Phe  
 245 250 255  
 Cys Tyr Val Lys Arg Tyr Val Lys Ala Phe Pro Phe Thr Asn Lys Asn  
 260 265 270  
 Gln Gln Lys Glu Met Ile Glu Thr Lys Val Val Lys Glu Glu Lys Ala  
 275 280 285  
 Asn Asp Ser Asn Pro Asn Glu Glu Ser Lys Lys Thr Asp Lys Asn Pro  
 290 295 300  
 Glu Glu Ser Lys Ser Pro Ser Lys Thr Thr Val Arg Cys Leu Glu Ala  
 305 310 315 320  
 Glu Val

<210> 202

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 202

gagctttcca tccaggtgtc atgc

24

<210> 203

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 203

gtcagtgaca gtacctactc gg

22

<210> 204

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 204

tggagcagga ggagtagtag tagg

24

<210> 205

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 205

aggaggcctg taggctgctg ggactaagtt tggccggcaa ggaccaagtt

50

<210> 206

<211> 1620

<212> DNA

<213> Homo sapiens

<220>

<221> modified\_base

<222> (973)

<223> a, t, c or g

<220>

<221> modified\_base

<222> (977)

<223> a, t, c or g

<220>

<221> modified\_base

<222> (996)

<223> a, t, c or g

<220>

<221> modified\_base

&lt;222&gt; (1003)

&lt;223&gt; a, t, c or g

&lt;400&gt; 206

```

agatggcggt cttggcacct ctaattgctc tcgtgtatcc ggtgcccgcga ctttcacgat 60
ggctcgccca accttactac cttctgtcgg ccctgtcttc tgctgccttc ctactcgtga 120
ggaaactgcc gccgctctgc cacggtctgc ccaccaacg cgaagacggt aaccctgtg 180
actttgactg gagagaagtg gagatcctga tgtttctcag tgccattgtg atgatgaaga 240
accgcagatc catcactgtg gagcaacata taggcaacat tttcatgttt agtaaagtgg 300
ccaacacaat tcttttcttc cgcttggata ttgcgatggg cctactttac atcacactct 360
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&lt;210&gt; 207

&lt;211&gt; 296

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 207

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Met Ala Val Leu Ala Pro Leu Ile Ala Leu Val Tyr Ser Val Pro Arg
  1              5              10              15

Leu Ser Arg Trp Leu Ala Gln Pro Tyr Tyr Leu Leu Ser Ala Leu Leu
  20              25              30

Ser Ala Ala Phe Leu Leu Val Arg Lys Leu Pro Pro Leu Cys His Gly
  35              40              45

Leu Pro Thr Gln Arg Glu Asp Gly Asn Pro Cys Asp Phe Asp Trp Arg
  50              55              60

Glu Val Glu Ile Leu Met Phe Leu Ser Ala Ile Val Met Met Lys Asn
  65              70              75              80

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Arg Arg Ser Ile Thr Val Glu Gln His Ile Gly Asn Ile Phe Met Phe  
                     85                    90                    95  
 Ser Lys Val Ala Asn Thr Ile Leu Phe Phe Arg Leu Asp Ile Arg Met  
                     100                    105                    110  
 Gly Leu Leu Tyr Ile Thr Leu Cys Ile Val Phe Leu Met Thr Cys Lys  
                     115                    120                    125  
 Pro Pro Leu Tyr Met Gly Pro Glu Tyr Ile Lys Tyr Phe Asn Asp Lys  
                     130                    135                    140  
 Thr Ile Asp Glu Glu Leu Glu Arg Asp Lys Arg Val Thr Trp Ile Val  
 145                    150                    155                    160  
 Glu Phe Phe Ala Asn Trp Ser Asn Asp Cys Gln Ser Phe Ala Pro Ile  
                     165                    170                    175  
 Tyr Ala Asp Leu Ser Leu Lys Tyr Asn Cys Thr Gly Leu Asn Phe Gly  
                     180                    185                    190  
 Lys Val Asp Val Gly Arg Tyr Thr Asp Val Ser Thr Arg Tyr Lys Val  
                     195                    200                    205  
 Ser Thr Ser Pro Leu Thr Lys Gln Leu Pro Thr Leu Ile Leu Phe Gln  
                     210                    215                    220  
 Gly Gly Lys Glu Ala Met Arg Arg Pro Gln Ile Asp Lys Lys Gly Arg  
 225                    230                    235                    240  
 Ala Val Ser Trp Thr Phe Ser Glu Glu Asn Val Ile Arg Glu Phe Asn  
                     245                    250                    255  
 Leu Asn Glu Leu Tyr Gln Arg Ala Lys Lys Leu Ser Lys Ala Gly Asp  
                     260                    265                    270  
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<210> 208

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 208

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<210> 209  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 209  
 tggagacaat atccctgagg 20

<210> 210  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 210  
 aacagttggc cacagcatgg cagg 24

<210> 211  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 211  
 ccattgatga ggaactagaa cgggacaaga gggtcacttg gattgtggag 50

<210> 212  
 <211> 1985  
 <212> DNA  
 <213> Homo sapiens

<400> 212  
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 caacagcgcc aacgaccaga acctaggcaa cgggtcatggc aaagacctcc ttaatggagt 240  
 gaagctggtg gtggagacac ccgaggagac cctgttcacc taccaagggg ccagtgtgat 300  
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 tgacgtctcg ctggagatcc aggatctgcg gctggaggac tatgggcggt accgctgtga 540  
 ggtcattgac gggctggagg atgaaagcgg tctgggtggag ctggagctgc ggggtgtggt 600



| 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Leu | Glu | Ile | Gln | Asp | Leu | Arg | Leu | Glu | Asp | Tyr | Gly | Arg | Tyr |
| 130 |     |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Arg | Cys | Glu | Val | Ile | Asp | Gly | Leu | Glu | Asp | Glu | Ser | Gly | Leu | Val | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Glu | Leu | Arg | Gly | Val | Val | Phe | Pro | Tyr | Gln | Ser | Pro | Asn | Gly | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Tyr | Gln | Phe | Asn | Phe | His | Glu | Gly | Gln | Gln | Val | Cys | Ala | Glu | Gln | Ala |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ala | Val | Val | Ala | Ser | Phe | Glu | Gln | Leu | Phe | Arg | Ala | Trp | Glu | Glu | Gly |
|     |     |     | 195 |     |     |     |     | 200 |     |     |     | 205 |     |     |     |
| Leu | Asp | Trp | Cys | Asn | Ala | Gly | Trp | Leu | Gln | Asp | Ala | Thr | Val | Gln | Tyr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Pro | Ile | Met | Leu | Pro | Arg | Gln | Pro | Cys | Gly | Gly | Pro | Gly | Leu | Ala | Pro |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Val | Arg | Ser | Tyr | Gly | Pro | Arg | His | Arg | Arg | Leu | His | Arg | Tyr | Asp |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Val | Phe | Cys | Phe | Ala | Thr | Ala | Leu | Lys | Gly | Arg | Val | Tyr | Tyr | Leu | Glu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| His | Pro | Glu | Lys | Leu | Thr | Leu | Thr | Glu | Ala | Arg | Glu | Ala | Cys | Gln | Glu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Asp | Asp | Ala | Thr | Ile | Ala | Lys | Val | Gly | Gln | Leu | Phe | Ala | Ala | Trp | Lys |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Phe | His | Gly | Leu | Asp | Arg | Cys | Asp | Ala | Gly | Trp | Leu | Ala | Asp | Gly | Ser |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Val | Arg | Tyr | Pro | Val | Val | His | Pro | His | Pro | Asn | Cys | Gly | Pro | Pro | Glu |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Pro | Gly | Val | Arg | Ser | Phe | Gly | Phe | Pro | Asp | Pro | Gln | Ser | Arg | Leu | Tyr |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Gly | Val | Tyr | Cys | Tyr | Arg | Gln | His |     |     |     |     |     |     |     |     |
|     |     | 355 |     |     |     | 360 |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 214

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;



<400> 214

18

<210> 215

<211> 18

<212> DNA

<213> Artificial Sequence

**<220>**

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

<400> 215

18

<210> 216

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

<400> 216

18

<210> 217

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

<400> 217

18

<210> 218

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide probe

<400> 218

24

&lt;210&gt; 219

&lt;211&gt; 45

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

&lt;400&gt; 219

gatgccacga tcgccaaggt gggacagctc tttgccgcct ggaag

45

&lt;210&gt; 220

&lt;211&gt; 1503

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 220

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accttgaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1500
aaa 1503

```

&lt;210&gt; 221

&lt;211&gt; 328

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 221

Met Met Trp Arg Pro Ser Val Leu Leu Leu Leu Leu Leu Arg His

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Gly Ala Gln Gly Lys Pro Ser Pro Asp Ala Gly Pro His Gly Gln Gly | 20  | 25  | 30  |
| Arg Val His Gln Ala Ala Pro Leu Ser Asp Ala Pro His Asp Asp Ala | 35  | 40  | 45  |
| His Gly Asn Phe Gln Tyr Asp His Glu Ala Phe Leu Gly Arg Glu Val | 50  | 55  | 60  |
| Ala Lys Glu Phe Asp Gln Leu Thr Pro Glu Glu Ser Gln Ala Arg Leu | 65  | 70  | 75  |
| Gly Arg Ile Val Asp Arg Met Asp Arg Ala Gly Asp Gly Asp Gly Trp | 85  | 90  | 95  |
| Val Ser Leu Ala Glu Leu Arg Ala Trp Ile Ala His Thr Gln Gln Arg | 100 | 105 | 110 |
| His Ile Arg Asp Ser Val Ser Ala Ala Trp Asp Thr Tyr Asp Thr Asp | 115 | 120 | 125 |
| Arg Asp Gly Arg Val Gly Trp Glu Glu Leu Arg Asn Ala Thr Tyr Gly | 130 | 135 | 140 |
| His Tyr Ala Pro Gly Glu Glu Phe His Asp Val Glu Asp Ala Glu Thr | 145 | 150 | 155 |
| Tyr Lys Lys Met Leu Ala Arg Asp Glu Arg Arg Phe Arg Val Ala Asp | 165 | 170 | 175 |
| Gln Asp Gly Asp Ser Met Ala Thr Arg Glu Glu Leu Thr Ala Phe Leu | 180 | 185 | 190 |
| His Pro Glu Glu Phe Pro His Met Arg Asp Ile Val Ile Ala Glu Thr | 195 | 200 | 205 |
| Leu Glu Asp Leu Asp Arg Asn Lys Asp Gly Tyr Val Gln Val Glu Glu | 210 | 215 | 220 |
| Tyr Ile Ala Asp Leu Tyr Ser Ala Glu Pro Gly Glu Glu Glu Pro Ala | 225 | 230 | 235 |
| Trp Val Gln Thr Glu Arg Gln Gln Phe Arg Asp Phe Arg Asp Leu Asn | 245 | 250 | 255 |
| Lys Asp Gly His Leu Asp Gly Ser Glu Val Gly His Trp Val Leu Pro | 260 | 265 | 270 |
| Pro Ala Gln Asp Gln Pro Leu Val Glu Ala Asn His Leu Leu His Glu | 275 | 280 | 285 |

Ser Asp Thr Asp Lys Asp Gly Arg Leu Ser Lys Ala Glu Ile Leu Gly  
 290 295 300

Asn Trp Asn Met Phe Val Gly Ser Gln Ala Thr Asn Tyr Gly Glu Asp  
 305 310 315 320

Leu Thr Arg His His Asp Glu Leu  
 325

<210> 222

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 222

cgcaggccct catggccagg

20

<210> 223

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 223

gaaatcctgg gtaattgg

18

<210> 224

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 224

gtgcgcggtg ctcacagctc atc

23

<210> 225

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 225  
 cccccctgag cgacgctccc ccatgatgac gcccacggga actt

44

<210> 226  
 <211> 2403  
 <212> DNA  
 <213> Homo sapiens

<400> 226  
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 gggcgggcggg cgcgggtgag agggatccct gacgcctctg tccctgtttc tttgtcgtc 120  
 ccagcctgtc tgtcgtcggt ttggcgcccc cgcctccccg cgggtgcgggg ttgcacaccg 180  
 atcctgggct tcgctcgatt tgccgcagag gcgcctccca gacctagagg ggcgtggcc 240  
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 gtacacagga ggccacagga caagcagtggt ccacagcaca tccaccaaca ggtaaacgac 840  
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 gaaaagtggc tctaattgtt ggaattggaa cagaaggacc acatgtgggc cttgttcaag 1020  
 ccagtgaaca tcccaaaata gaattttact tgaaaaactt tacatcagcc aaagatgttt 1080  
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 aaa 2403

<210> 227



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 275 280 285  
 Ala Arg Glu Phe Gly Val Asn Val Phe Ile Val Ser Val Ala Lys Pro  
 290 295 300  
 Ile Pro Glu Glu Leu Gly Met Val Gln Asp Val Thr Phe Val Asp Lys  
 305 310 315 320  
 Ala Val Cys Arg Asn Asn Gly Phe Phe Ser Tyr His Met Pro Asn Trp  
 325 330 335  
 Phe Gly Thr Thr Lys Tyr Val Lys Pro Leu Val Gln Lys Leu Cys Thr  
 340 345 350  
 His Glu Gln Met Met Cys Ser Lys Thr Cys Tyr Asn Ser Val Asn Ile  
 355 360 365  
 Ala Phe Leu Ile Asp Gly Ser Ser Ser Val Gly Asp Ser Asn Phe Arg  
 370 375 380  
 Leu Met Leu Glu Phe Val Ser Asn Ile Ala Lys Thr Phe Glu Ile Ser  
 385 390 395 400  
 Asp Ile Gly Ala Lys Ile Ala Ala Val Gln Phe Thr Tyr Asp Gln Arg  
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 420 425 430  
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 435 440 445  
 Ala Ile Ser Phe Thr Val Arg Asn Val Phe Gly Pro Ile Arg Glu Ser  
 450 455 460  
 Pro Asn Lys Asn Phe Leu Val Ile Val Thr Asp Gly Gln Ser Tyr Asp  
 465 470 475 480  
 Asp Val Gln Gly Pro Ala Ala Ala Ala His Asp Ala Gly Ile Thr Ile  
 485 490 495  
 Phe Ser Val Gly Val Ala Trp Ala Pro Leu Asp Asp Leu Lys Asp Met  
 500 505 510  
 Ala Ser Lys Pro Lys Glu Ser His Ala Phe Phe Thr Arg Glu Phe Thr  
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Phe Leu Glu Ser Gln Gln  
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<210> 228

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 228

tggtctcgca caccgatc

18

<210> 229

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 229

ctgctgtcca caggggag

18

<210> 230

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 230

ccttgaagca tactgctc

18

<210> 231

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
oligonucleotide probe

<400> 231

gagatagcaa tttccgcc

18

<210> 232



<211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 232  
 ttctctcaaga gggcagcc

18

<210> 233  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 233  
 cttggcacca atgtccgaga ttcc

24

<210> 234  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 oligonucleotide probe

<400> 234  
 gctctgagga aggtgacgcg cggggcctcc gaacccttgg ccttg

45

<210> 235  
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 acgaggactg tggggccagc atgtactgcc agtttgccag cttccagtac acctgccagc 660  
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<211> 350

<212> PRT

<213> Homo sapiens

<400> 236

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Lys Pro Gly Pro Ala Leu Ser Tyr Pro Gln Glu Glu Ala Thr Leu Asn  
35 40 45

Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys  
50 55 60

Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Ala Lys  
65 70 75 80

Ala Ser Ser Glu Val Asn Leu Ala Asn Leu Pro Pro Ser Tyr His Asn  
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 Glu Thr Asn Thr Asp Thr Lys Val Gly Asn Asn Thr Ile His Val His  
                     100                    105                    110  
 Arg Glu Ile His Lys Ile Thr Asn Asn Gln Thr Gly Gln Met Val Phe  
                     115                    120                    125  
 Ser Glu Thr Val Ile Thr Ser Val Gly Asp Glu Glu Gly Arg Arg Ser  
                     130                    135                    140  
 His Glu Cys Ile Ile Asp Glu Asp Cys Gly Pro Ser Met Tyr Cys Gln  
                     145                    150                    155                    160  
 Phe Ala Ser Phe Gln Tyr Thr Cys Gln Pro Cys Arg Gly Gln Arg Met  
                     165                    170                    175  
 Leu Cys Thr Arg Asp Ser Glu Cys Cys Gly Asp Gln Leu Cys Val Trp  
                     180                    185                    190  
 Gly His Cys Thr Lys Met Ala Thr Arg Gly Ser Asn Gly Thr Ile Cys  
                     195                    200                    205  
 Asp Asn Gln Arg Asp Cys Gln Pro Gly Leu Cys Cys Ala Phe Gln Arg  
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 Gly Leu Leu Phe Pro Val Cys Thr Pro Leu Pro Val Glu Gly Glu Leu  
                     225                    230                    235                    240  
 Cys His Asp Pro Ala Ser Arg Leu Leu Asp Leu Ile Thr Trp Glu Leu  
                     245                    250                    255  
 Glu Pro Asp Gly Ala Leu Asp Arg Cys Pro Cys Ala Ser Gly Leu Leu  
                     260                    265                    270  
 Cys Gln Pro His Ser His Ser Leu Val Tyr Val Cys Lys Pro Thr Phe  
                     275                    280                    285  
 Val Gly Ser Arg Asp Gln Asp Gly Glu Ile Leu Leu Pro Arg Glu Val  
                     290                    295                    300  
 Pro Asp Glu Tyr Glu Val Gly Ser Phe Met Glu Glu Val Arg Gln Glu  
                     305                    310                    315                    320  
 Leu Glu Asp Leu Glu Arg Ser Leu Thr Glu Glu Met Ala Leu Gly Glu  
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24

<210> 243  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 243  
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45

<210> 244  
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 cactctcctt ccttcccaaa cacacatgtg catgtacaca cacacatata 150  
 cacacatata ccttctcttc cttcactgaa gactcacagt cactcactct 200  
 gtgagcaggt catagaaaag gacactaaag ccttaaggac aggcctggcc 250  
 attacctctg cagctccttt ggcttggtga gtcaaaaaac atgggagggg 300  
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 gcctgggtga cagaatgaga ctctgtctca aacaaacaaa cacgggagga 600





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 ggcattccga agctgacttt ctataggcaa tttgtacct ttgtggagaa 3600  
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<210> 245

<211> 713

<212> PRT

<213> Homo Sapien

<400> 245

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Arg | Leu | Leu | Val | Ala | Pro | Leu | Leu | Leu | Ala | Trp | Val | Ala | Gly | 1   | 5   | 10  | 15 |
| Ala | Thr | Ala | Thr | Val | Pro | Val | Val | Pro | Trp | His | Val | Pro | Cys | Pro | 20  | 25  | 30  |    |
| Pro | Gln | Cys | Ala | Cys | Gln | Ile | Arg | Pro | Trp | Tyr | Thr | Pro | Arg | Ser | 35  | 40  | 45  |    |
| Ser | Tyr | Arg | Glu | Ala | Thr | Thr | Val | Asp | Cys | Asn | Asp | Leu | Phe | Leu | 50  | 55  | 60  |    |
| Thr | Ala | Val | Pro | Pro | Ala | Leu | Pro | Ala | Gly | Thr | Gln | Thr | Leu | Leu | 65  | 70  | 75  |    |
| Leu | Gln | Ser | Asn | Ser | Ile | Val | Arg | Val | Asp | Gln | Ser | Glu | Leu | Gly | 80  | 85  | 90  |    |
| Tyr | Leu | Ala | Asn | Leu | Thr | Glu | Leu | Asp | Leu | Ser | Gln | Asn | Ser | Phe | 95  | 100 | 105 |    |
| Ser | Asp | Ala | Arg | Asp | Cys | Asp | Phe | His | Ala | Leu | Pro | Gln | Leu | Leu | 110 | 115 | 120 |    |
| Ser | Leu | His | Leu | Glu | Glu | Asn | Gln | Leu | Thr | Arg | Leu | Glu | Asp | His | 125 | 130 | 135 |    |
| Ser | Phe | Ala | Gly | Leu | Ala | Ser | Leu | Gln | Glu | Leu | Tyr | Leu | Asn | His | 140 | 145 | 150 |    |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Gln | Leu | Tyr | Arg | Ile | Ala | Pro | Arg | Ala | Phe | Ser | Gly | Leu | Ser | 155 | 160 | 165 |
| Asn | Leu | Leu | Arg | Leu | His | Leu | Asn | Ser | Asn | Leu | Leu | Arg | Ala | Ile | 170 | 175 | 180 |
| Asp | Ser | Arg | Trp | Phe | Glu | Met | Leu | Pro | Asn | Leu | Glu | Ile | Leu | Met | 185 | 190 | 195 |
| Ile | Gly | Gly | Asn | Lys | Val | Asp | Ala | Ile | Leu | Asp | Met | Asn | Phe | Arg | 200 | 205 | 210 |
| Pro | Leu | Ala | Asn | Leu | Arg | Ser | Leu | Val | Leu | Ala | Gly | Met | Asn | Leu | 215 | 220 | 225 |
| Arg | Glu | Ile | Ser | Asp | Tyr | Ala | Leu | Glu | Gly | Leu | Gln | Ser | Leu | Glu | 230 | 235 | 240 |
| Ser | Leu | Ser | Phe | Tyr | Asp | Asn | Gln | Leu | Ala | Arg | Val | Pro | Arg | Arg | 245 | 250 | 255 |
| Ala | Leu | Glu | Gln | Val | Pro | Gly | Leu | Lys | Phe | Leu | Asp | Leu | Asn | Lys | 260 | 265 | 270 |
| Asn | Pro | Leu | Gln | Arg | Val | Gly | Pro | Gly | Asp | Phe | Ala | Asn | Met | Leu | 275 | 280 | 285 |
| His | Leu | Lys | Glu | Leu | Gly | Leu | Asn | Asn | Met | Glu | Glu | Leu | Val | Ser | 290 | 295 | 300 |
| Ile | Asp | Lys | Phe | Ala | Leu | Val | Asn | Leu | Pro | Glu | Leu | Thr | Lys | Leu | 305 | 310 | 315 |
| Asp | Ile | Thr | Asn | Asn | Pro | Arg | Leu | Ser | Phe | Ile | His | Pro | Arg | Ala | 320 | 325 | 330 |
| Phe | His | His | Leu | Pro | Gln | Met | Glu | Thr | Leu | Met | Leu | Asn | Asn | Asn | 335 | 340 | 345 |
| Ala | Leu | Ser | Ala | Leu | His | Gln | Gln | Thr | Val | Glu | Ser | Leu | Pro | Asn | 350 | 355 | 360 |
| Leu | Gln | Glu | Val | Gly | Leu | His | Gly | Asn | Pro | Ile | Arg | Cys | Asp | Cys | 365 | 370 | 375 |
| Val | Ile | Arg | Trp | Ala | Asn | Ala | Thr | Gly | Thr | Arg | Val | Arg | Phe | Ile | 380 | 385 | 390 |
| Glu | Pro | Gln | Ser | Thr | Leu | Cys | Ala | Glu | Pro | Pro | Asp | Leu | Gln | Arg | 395 | 400 | 405 |
| Leu | Pro | Val | Arg | Glu | Val | Pro | Phe | Arg | Glu | Met | Thr | Asp | His | Cys |     |     |     |

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 410        |     |     |     |     | 415        |     |     |     |     | 420        |
| Leu | Pro | Leu | Ile | Ser<br>425 | Pro | Arg | Ser | Phe | Pro<br>430 | Pro | Ser | Leu | Gln | Val<br>435 |
| Ala | Ser | Gly | Glu | Ser<br>440 | Met | Val | Leu | His | Cys<br>445 | Arg | Ala | Leu | Ala | Glu<br>450 |
| Pro | Glu | Pro | Glu | Ile<br>455 | Tyr | Trp | Val | Thr | Pro<br>460 | Ala | Gly | Leu | Arg | Leu<br>465 |
| Thr | Pro | Ala | His | Ala<br>470 | Gly | Arg | Arg | Tyr | Arg<br>475 | Val | Tyr | Pro | Glu | Gly<br>480 |
| Thr | Leu | Glu | Leu | Arg<br>485 | Arg | Val | Thr | Ala | Glu<br>490 | Glu | Ala | Gly | Leu | Tyr<br>495 |
| Thr | Cys | Val | Ala | Gln<br>500 | Asn | Leu | Val | Gly | Ala<br>505 | Asp | Thr | Lys | Thr | Val<br>510 |
| Ser | Val | Val | Val | Gly<br>515 | Arg | Ala | Leu | Leu | Gln<br>520 | Pro | Gly | Arg | Asp | Glu<br>525 |
| Gly | Gln | Gly | Leu | Glu<br>530 | Leu | Arg | Val | Gln | Glu<br>535 | Thr | His | Pro | Tyr | His<br>540 |
| Ile | Leu | Leu | Ser | Trp<br>545 | Val | Thr | Pro | Pro | Asn<br>550 | Thr | Val | Ser | Thr | Asn<br>555 |
| Leu | Thr | Trp | Ser | Ser<br>560 | Ala | Ser | Ser | Leu | Arg<br>565 | Gly | Gln | Gly | Ala | Thr<br>570 |
| Ala | Leu | Ala | Arg | Leu<br>575 | Pro | Arg | Gly | Thr | His<br>580 | Ser | Tyr | Asn | Ile | Thr<br>585 |
| Arg | Leu | Leu | Gln | Ala<br>590 | Thr | Glu | Tyr | Trp | Ala<br>595 | Cys | Leu | Gln | Val | Ala<br>600 |
| Phe | Ala | Asp | Ala | His<br>605 | Thr | Gln | Leu | Ala | Cys<br>610 | Val | Trp | Ala | Arg | Thr<br>615 |
| Lys | Glu | Ala | Thr | Ser<br>620 | Cys | His | Arg | Ala | Leu<br>625 | Gly | Asp | Arg | Pro | Gly<br>630 |
| Leu | Ile | Ala | Ile | Leu<br>635 | Ala | Leu | Ala | Val | Leu<br>640 | Leu | Leu | Ala | Ala | Gly<br>645 |
| Leu | Ala | Ala | His | Leu<br>650 | Gly | Thr | Gly | Gln | Pro<br>655 | Arg | Lys | Gly | Val | Gly<br>660 |
| Gly | Arg | Arg | Pro | Leu<br>665 | Pro | Pro | Ala | Trp | Ala<br>670 | Phe | Trp | Gly | Trp | Ser<br>675 |

Ala Pro Ser Val Arg Val Val Ser Ala Pro Leu Val Leu Pro Trp  
                     680                    685                    690

Asn Pro Gly Arg Lys Leu Pro Arg Ser Ser Glu Gly Glu Thr Leu  
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Leu Pro Pro Leu Ser Gln Asn Ser  
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<211> 22

<212> DNA

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<220>

<223> Synthetic Oligonucleotide Probe

<400> 246

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<210> 247

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 247

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<210> 248

<211> 45

<212> DNA

<213> Artificial Sequence

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<211> 3401

<212> DNA

<213> Homo Sapien

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1.0014200374E+000

| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 |      |



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 a 3401

<210> 250

<211> 546

<212> PRT

<213> Homo Sapien

<400> 250

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| Met | Arg | Gln | Thr | Ile | Ile | Lys | Val | Ile | Lys | Phe | Ile | Leu | Ile | Ile |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Cys | Tyr | Thr | Val | Tyr | Tyr | Val | His | Asn | Ile | Lys | Phe | Asp | Val | Asp |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Cys | Thr | Val | Asp | Ile | Glu | Ser | Leu | Thr | Gly | Tyr | Arg | Thr | Tyr | Arg |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Cys | Ala | His | Pro | Leu | Ala | Thr | Leu | Phe | Lys | Ile | Leu | Ala | Ser | Phe |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Tyr | Ile | Ser | Leu | Val | Ile | Phe | Tyr | Gly | Leu | Ile | Cys | Met | Tyr | Thr |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Leu | Trp | Trp | Met | Leu | Arg | Arg | Ser | Leu | Lys | Lys | Tyr | Ser | Phe | Glu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Ile | Arg | Glu | Glu | Ser | Ser | Tyr | Ser | Asp | Ile | Pro | Asp | Val | Lys |

| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |      |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Leu | Lys | Thr | Ile | Glu | Glu | Ile | Ile | Ser | Phe | Gln | His | Leu | His |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Arg | Leu | Thr | Cys | Leu | Lys | Leu | Trp | Tyr | Asn | His | Ile | Ala | Tyr | Ile |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Pro | Ile | Gln | Ile | Gly | Asn | Leu | Thr | Asn | Leu | Glu | Arg | Leu | Tyr | Leu |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Asn | Arg | Asn | Lys | Ile | Glu | Lys | Ile | Pro | Thr | Gln | Leu | Phe | Tyr | Cys |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Arg | Lys | Leu | Arg | Tyr | Leu | Asp | Leu | Ser | His | Asn | Asn | Leu | Thr | Phe |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Leu | Pro | Ala | Asp | Ile | Gly | Leu | Leu | Gln | Asn | Leu | Gln | Asn | Leu | Ala |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Ile | Thr | Ala | Asn | Arg | Ile | Glu | Thr | Leu | Pro | Pro | Glu | Leu | Phe | Gln |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Cys | Arg | Lys | Leu | Arg | Ala | Leu | His | Leu | Gly | Asn | Asn | Val | Leu | Gln |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Ser | Leu | Pro | Ser | Arg | Val | Gly | Glu | Leu | Thr | Asn | Leu | Thr | Gln | Ile |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Glu | Leu | Arg | Gly | Asn | Arg | Leu | Glu | Cys | Leu | Pro | Val | Glu | Leu | Gly |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |
| Glu | Cys | Pro | Leu | Leu | Lys | Arg | Ser | Gly | Leu | Val | Val | Glu | Glu | Asp |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |
| Leu | Phe | Asn | Thr | Leu | Pro | Pro | Glu | Val | Lys | Glu | Arg | Leu | Trp | Arg |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Ala | Asp | Lys | Glu | Gln | Ala |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 545 |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 251

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 251

caacaatgag ggcaccaagc 20

&lt;210&gt; 252

&lt;211&gt; 24



<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 252

gatggctagg ttctggaggt tctg 24

<210> 253

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 253

caacctgcag gagattgacc tcaaggacaa caacctcaag accatcg 47

<210> 254

<211> 1650

<212> DNA

<213> Homo Sapien

<400> 254

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tgaacgcagg agctgtcatt gactggccca cagaggaggg caaggaagta 150

tgggattatg tgacgggtccg caaggatgcc tacatgttct ggtggctcta 200

ttatgccacc aactcctgca agaacttctc agaactgccc ctggtcatgt 250

ggcttcaggg cgggtccaggc ggttctagca ctggatttg aaactttgag 300

gaaattgggc cccttgacag tgatctcaa ccacggaaaa ccacctggct 350

ccaggctgcc agtctcctat ttgtggataa tcccgtgggc actgggttca 400

gttatgtgaa tggtagtggt gcctatgcc aggacctggc tatggtggct 450

tcagacatga tggttctcct gaagaccttc ttcagttgcc acaaagaatt 500

ccagacagtt ccattctaca ttttctcaga gtcctatgga ggaaaaatgg 550

cagctggcat tggcttagag ctttataagg ccattcagcg agggaccatc 600

aagtgcaact ttgcgggggt tgccttgggt gattcctgga tctccctgt 650

tgattcgggt ctctcctggg gaccttacct gtacagcatg tctcttctcg 700

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gccgtaaata aggggctcta cagagaggcc acagagctgt gggggaaagc 800  
agaaatgatac attgaacaga acacagatgg ggtgaacttc tataacatct 850  
taactaaaag cactcccacg tctacaatgg agtcgagtct agaattcaca 900  
cagagccacc tagtttgtct ttgtcagcgc cacgtgagac acctacaacg 950  
agatgcctta agccagctca tgaatggccc catcagaaag aagctcaaaa 1000  
ttattcctga ggatcaatcc tggggaggcc aggcctacca cgtctttgtg 1050  
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tctactggat tctgaaagct ggtcatatgg ttctttctga ccaaggggac 1350  
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gggctggaga tgagctgggt tggccttggg gcacagagct gagctgaggc 1450  
cgctgaagct gtaggaagcg ccattcttcc ctgtatctaa ctggggctgt 1500  
gatcaagaag gttctgacca gcttctgcag aggataaaaat cattgtctct 1550  
ggaggcaatt tggaaattat ttctgcttct taaaaaaacc taagattttt 1600  
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<210> 255

<211> 452

<212> PRT

<213> Homo Sapien

<400> 255

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Leu | Ala | Leu | Arg | Arg | Ser | Pro | Val | Pro | Arg | Trp | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |
| Leu | Leu | Pro | Leu | Leu | Leu | Gly | Leu | Asn | Ala | Gly | Ala | Val | Ile | Asp |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     | 30  |     |
| Trp | Pro | Thr | Glu | Glu | Gly | Lys | Glu | Val | Trp | Asp | Tyr | Val | Thr | Val |
|     |     |     | 35  |     |     |     |     |     | 40  |     |     |     | 45  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Lys | Asp | Ala | Tyr | Met | Phe | Trp | Trp | Leu | Tyr | Tyr | Ala | Thr | Asn | 50  | 55  | 60  |
| Ser | Cys | Lys | Asn | Phe | Ser | Glu | Leu | Pro | Leu | Val | Met | Trp | Leu | Gln | 65  | 70  | 75  |
| Gly | Gly | Pro | Gly | Gly | Ser | Ser | Thr | Gly | Phe | Gly | Asn | Phe | Glu | Glu | 80  | 85  | 90  |
| Ile | Gly | Pro | Leu | Asp | Ser | Asp | Leu | Lys | Pro | Arg | Lys | Thr | Thr | Trp | 95  | 100 | 105 |
| Leu | Gln | Ala | Ala | Ser | Leu | Leu | Phe | Val | Asp | Asn | Pro | Val | Gly | Thr | 110 | 115 | 120 |
| Gly | Phe | Ser | Tyr | Val | Asn | Gly | Ser | Gly | Ala | Tyr | Ala | Lys | Asp | Leu | 125 | 130 | 135 |
| Ala | Met | Val | Ala | Ser | Asp | Met | Met | Val | Leu | Leu | Lys | Thr | Phe | Phe | 140 | 145 | 150 |
| Ser | Cys | His | Lys | Glu | Phe | Gln | Thr | Val | Pro | Phe | Tyr | Ile | Phe | Ser | 155 | 160 | 165 |
| Glu | Ser | Tyr | Gly | Gly | Lys | Met | Ala | Ala | Gly | Ile | Gly | Leu | Glu | Leu | 170 | 175 | 180 |
| Tyr | Lys | Ala | Ile | Gln | Arg | Gly | Thr | Ile | Lys | Cys | Asn | Phe | Ala | Gly | 185 | 190 | 195 |
| Val | Ala | Leu | Gly | Asp | Ser | Trp | Ile | Ser | Pro | Val | Asp | Ser | Val | Leu | 200 | 205 | 210 |
| Ser | Trp | Gly | Pro | Tyr | Leu | Tyr | Ser | Met | Ser | Leu | Leu | Glu | Asp | Lys | 215 | 220 | 225 |
| Gly | Leu | Ala | Glu | Val | Ser | Lys | Val | Ala | Glu | Gln | Val | Leu | Asn | Ala | 230 | 235 | 240 |
| Val | Asn | Lys | Gly | Leu | Tyr | Arg | Glu | Ala | Thr | Glu | Leu | Trp | Gly | Lys | 245 | 250 | 255 |
| Ala | Glu | Met | Ile | Ile | Glu | Gln | Asn | Thr | Asp | Gly | Val | Asn | Phe | Tyr | 260 | 265 | 270 |
| Asn | Ile | Leu | Thr | Lys | Ser | Thr | Pro | Thr | Ser | Thr | Met | Glu | Ser | Ser | 275 | 280 | 285 |
| Leu | Glu | Phe | Thr | Gln | Ser | His | Leu | Val | Cys | Leu | Cys | Gln | Arg | His | 290 | 295 | 300 |
| Val | Arg | His | Leu | Gln | Arg | Asp | Ala | Leu | Ser | Gln | Leu | Met | Asn | Gly |     |     |     |

Gln Glu

 $\langle 211 \rangle$  1100

<213> Homo Sapien

|            |            |            |            |            |     |
|------------|------------|------------|------------|------------|-----|
| ggccgcggga | gaggaggcca | tgggcgcgcg | cggggcgctg | ctgctggcgc | 50  |
| tgtctgtggc | tcgggctgga | ctcaggaagc | cggagtcgca | ggaggcggcg | 100 |
| ccgttatcag | gaccatgcgg | ccgacgggtc | atcacgtcgc | gcatcgtggg | 150 |
| tggagaggac | gccgaactcg | ggcgttggcc | gtggcagggg | agcctgcgcc | 200 |
| tgtgggattc | ccacgtatgc | ggagtgagcc | tgctcagcca | ccgctgggca | 250 |
| ctcacggcgg | cgcactgctt | tgaaacctat | agtgacctta | gtgatccctc | 300 |
| cgggtggatg | gtccagtttg | gccagctgac | ttccatgcca | tccttctgga | 350 |
| gcctgcaggc | ctactacacc | cgttacttcg | tatcgaatat | ctatctgagc | 400 |

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<210> 257
<211> 314
<212> PRT
<213> Homo Sapien
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<400> 257
Met Gly Ala Arg Gly Ala Leu Leu Leu Ala Leu Leu Leu Ala Arg
 1          5          10          15

Ala Gly Leu Arg Lys Pro Glu Ser Gln Glu Ala Ala Pro Leu Ser
          20          25          30

Gly Pro Cys Gly Arg Arg Val Ile Thr Ser Arg Ile Val Gly Gly
          35          40          45

Glu Asp Ala Glu Leu Gly Arg Trp Pro Trp Gln Gly Ser Leu Arg
          50          55          60

Leu Trp Asp Ser His Val Cys Gly Val Ser Leu Leu Ser His Arg
          65          70          75

Trp Ala Leu Thr Ala Ala His Cys Phe Glu Thr Tyr Ser Asp Leu
          80          85          90

```

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asp | Pro | Ser | Gly | Trp | Met | Val | Gln | Phe | Gly | Gln | Leu | Thr | Ser | 95  | 100 | 105 |
| Met | Pro | Ser | Phe | Trp | Ser | Leu | Gln | Ala | Tyr | Tyr | Thr | Arg | Tyr | Phe | 110 | 115 | 120 |
| Val | Ser | Asn | Ile | Tyr | Leu | Ser | Pro | Arg | Tyr | Leu | Gly | Asn | Ser | Pro | 125 | 130 | 135 |
| Tyr | Asp | Ile | Ala | Leu | Val | Lys | Leu | Ser | Ala | Pro | Val | Thr | Tyr | Thr | 140 | 145 | 150 |
| Lys | His | Ile | Gln | Pro | Ile | Cys | Leu | Gln | Ala | Ser | Thr | Phe | Glu | Phe | 155 | 160 | 165 |
| Glu | Asn | Arg | Thr | Asp | Cys | Trp | Val | Thr | Gly | Trp | Gly | Tyr | Ile | Lys | 170 | 175 | 180 |
| Glu | Asp | Glu | Ala | Leu | Pro | Ser | Pro | His | Thr | Leu | Gln | Glu | Val | Gln | 185 | 190 | 195 |
| Val | Ala | Ile | Ile | Asn | Asn | Ser | Met | Cys | Asn | His | Leu | Phe | Leu | Lys | 200 | 205 | 210 |
| Tyr | Ser | Phe | Arg | Lys | Asp | Ile | Phe | Gly | Asp | Met | Val | Cys | Ala | Gly | 215 | 220 | 225 |
| Asn | Ala | Gln | Gly | Gly | Lys | Asp | Ala | Cys | Phe | Gly | Asp | Ser | Gly | Gly | 230 | 235 | 240 |
| Pro | Leu | Ala | Cys | Asn | Lys | Asn | Gly | Leu | Trp | Tyr | Gln | Ile | Gly | Val | 245 | 250 | 255 |
| Val | Ser | Trp | Gly | Val | Gly | Cys | Gly | Arg | Pro | Asn | Arg | Pro | Gly | Val | 260 | 265 | 270 |
| Tyr | Thr | Asn | Ile | Ser | His | His | Phe | Glu | Trp | Ile | Gln | Lys | Leu | Met | 275 | 280 | 285 |
| Ala | Gln | Ser | Gly | Met | Ser | Gln | Pro | Asp | Pro | Ser | Trp | Pro | Leu | Leu | 290 | 295 | 300 |
| Phe | Phe | Pro | Leu | Leu | Trp | Ala | Leu | Pro | Leu | Leu | Gly | Pro | Val |     | 305 | 310 |     |

&lt;210&gt; 258

&lt;211&gt; 2427

&lt;212&gt; DNA

&lt;213&gt; Homo Sapien

&lt;400&gt; 258

cccacgcgtc cgcggacgcg tgggaagggc agaatgggac tccaagcctg 50

cctcctaggg ctctttgccc tcatectctc tggcaaagtc agttacagcc 100  
 cggagcccgga ccagcggagg acgctgcccc caggctgggt gtccttgggc 150  
 cgtgcggacc ctgaggaaga gctgagctct acctttgccc tgagacagca 200  
 gaatgtggaa agactctcgg agctggtgca ggctgtgtcg gatcccagct 250  
 ctctcaata cggaaaatac ctgaccctag agaatgtggc tgatctggtg 300  
 aggccatccc cactgacctt ccacacggtg caaaaatggc tcttggcagc 350  
 cggagcccgag aagtgccatt ctgtgatcac acaggacttt ctgacttgct 400  
 ggctgagcat ccgacaagca gagctgctgc tccttggggc tgagtttcat 450  
 cactatgtgg gaggacctac ggaaacccat gttgtaaggc cccacatcc 500  
 ctaccagctt ccacaggcct tggcccccca tgtggacttt gtggggggac 550  
 tgcaccgttt tcccccaaca tcatectga ggcaacgtcc tgagccgcag 600  
 gtgacagga ctgtaggcct gcctctgggg gtaacccct ctgtgatccg 650  
 taagcgatac aacttgacct cacaagacgt gggctctggc accagcaata 700  
 acagccaagc ctgtgcccag ttctgggagc agtatttcca tgactcagac 750  
 ctggctcagt tcatgcgctt ctctgggtggc aactttgcac atcaggcatc 800  
 agtagcccggt gtggttggac aacagggccg gggccggggc gggattgagg 850  
 ccagtctaga tgtgcagtac ctgatgagtg ctggtgcca catctccacc 900  
 tgggtctaca gtagecctgg ccggcatgag ggacaggagc ccttctgca 950  
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 tgagctatgg agatgatgag gactccctca gcagcgcta catccagcgg 1050  
 gtcaacactg agctcatgaa ggctgcgctt cggggtctca cctgctctt 1100  
 cgcctcaggt gacagtgggg ccgggtgttg gtctgtctct ggaagacacc 1150  
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 ggcacatcct tccaggaacc ttctctcatc acaaagaaa ttgttgacta 1250  
 tatcagtgggt ggtggcttca gcaatgtgtt cccacggcct tcataccagg 1300  
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 aacctgaaa tgetgtgagc ttgacttgac tccaacctt accatgctcc 1900  
 atcactactca ggtctcccta ctctgcctt agattcctca ataagatgct 1950  
 gtaactagca ttttttgaat gcctctccct ccgcatctca tctttctctt 2000  
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 tgtagatttt tgetcttctc agtttactca ttgtccctg gaacaaatca 2350  
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 aatgattgat acctcaaag taaaaaa 2427

<210> 259

<211> 556

<212> PRT

<213> Homo Sapien

<400> 259

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Leu | Gln | Ala | Cys | Leu | Leu | Gly | Leu | Phe | Ala | Leu | Ile | Leu |
| 1   |     |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |

Ser Gly Lys Cys Ser Tyr Ser Pro Glu Pro Asp Gln Arg Arg Thr



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 20         |     |     |     |     | 25         |     |     |     |     | 30         |
| Leu | Pro | Pro | Gly | Trp<br>35  | Val | Ser | Leu | Gly | Arg<br>40  | Ala | Asp | Pro | Glu | Glu<br>45  |
| Glu | Leu | Ser | Leu | Thr<br>50  | Phe | Ala | Leu | Arg | Gln<br>55  | Gln | Asn | Val | Glu | Arg<br>60  |
| Leu | Ser | Glu | Leu | Val<br>65  | Gln | Ala | Val | Ser | Asp<br>70  | Pro | Ser | Ser | Pro | Gln<br>75  |
| Tyr | Gly | Lys | Tyr | Leu<br>80  | Thr | Leu | Glu | Asn | Val<br>85  | Ala | Asp | Leu | Val | Arg<br>90  |
| Pro | Ser | Pro | Leu | Thr<br>95  | Leu | His | Thr | Val | Gln<br>100 | Lys | Trp | Leu | Leu | Ala<br>105 |
| Ala | Gly | Ala | Gln | Lys<br>110 | Cys | His | Ser | Val | Ile<br>115 | Thr | Gln | Asp | Phe | Leu<br>120 |
| Thr | Cys | Trp | Leu | Ser<br>125 | Ile | Arg | Gln | Ala | Glu<br>130 | Leu | Leu | Leu | Pro | Gly<br>135 |
| Ala | Glu | Phe | His | His<br>140 | Tyr | Val | Gly | Gly | Pro<br>145 | Thr | Glu | Thr | His | Val<br>150 |
| Val | Arg | Ser | Pro | His<br>155 | Pro | Tyr | Gln | Leu | Pro<br>160 | Gln | Ala | Leu | Ala | Pro<br>165 |
| His | Val | Asp | Phe | Val<br>170 | Gly | Gly | Leu | His | Arg<br>175 | Phe | Pro | Pro | Thr | Ser<br>180 |
| Ser | Leu | Arg | Gln | Arg<br>185 | Pro | Glu | Pro | Gln | Val<br>190 | Thr | Gly | Thr | Val | Gly<br>195 |
| Leu | His | Leu | Gly | Val<br>200 | Thr | Pro | Ser | Val | Ile<br>205 | Arg | Lys | Arg | Tyr | Asn<br>210 |
| Leu | Thr | Ser | Gln | Asp<br>215 | Val | Gly | Ser | Gly | Thr<br>220 | Ser | Asn | Asn | Ser | Gln<br>225 |
| Ala | Cys | Ala | Gln | Phe<br>230 | Leu | Glu | Gln | Tyr | Phe<br>235 | His | Asp | Ser | Asp | Leu<br>240 |
| Ala | Gln | Phe | Met | Arg<br>245 | Leu | Phe | Gly | Gly | Asn<br>250 | Phe | Ala | His | Gln | Ala<br>255 |
| Ser | Val | Ala | Arg | Val<br>260 | Val | Gly | Gln | Gln | Gly<br>265 | Arg | Gly | Arg | Ala | Gly<br>270 |
| Ile | Glu | Ala | Ser | Leu<br>275 | Asp | Val | Gln | Tyr | Leu<br>280 | Met | Ser | Ala | Gly | Ala<br>285 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ile | Ser | Thr | Trp | Val | Tyr | Ser | Ser | Pro | Gly | Arg | His | Glu | Gly |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Gln | Glu | Pro | Phe | Leu | Gln | Trp | Leu | Met | Leu | Leu | Ser | Asn | Glu | Ser |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ala | Leu | Pro | His | Val | His | Thr | Val | Ser | Tyr | Gly | Asp | Asp | Glu | Asp |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Ser | Leu | Ser | Ser | Ala | Tyr | Ile | Gln | Arg | Val | Asn | Thr | Glu | Leu | Met |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Lys | Ala | Ala | Ala | Arg | Gly | Leu | Thr | Leu | Leu | Phe | Ala | Ser | Gly | Asp |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Ser | Gly | Ala | Gly | Cys | Trp | Ser | Val | Ser | Gly | Arg | His | Gln | Phe | Arg |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Pro | Thr | Phe | Pro | Ala | Ser | Ser | Pro | Tyr | Val | Thr | Thr | Val | Gly | Gly |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Thr | Ser | Phe | Gln | Glu | Pro | Phe | Leu | Ile | Thr | Asn | Glu | Ile | Val | Asp |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Tyr | Ile | Ser | Gly | Gly | Gly | Phe | Ser | Asn | Val | Phe | Pro | Arg | Pro | Ser |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Tyr | Gln | Glu | Glu | Ala | Val | Thr | Lys | Phe | Leu | Ser | Ser | Ser | Pro | His |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Leu | Pro | Pro | Ser | Ser | Tyr | Phe | Asn | Ala | Ser | Gly | Arg | Ala | Tyr | Pro |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Asp | Val | Ala | Ala | Leu | Ser | Asp | Gly | Tyr | Trp | Val | Val | Ser | Asn | Arg |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Val | Pro | Ile | Pro | Trp | Val | Ser | Gly | Thr | Ser | Ala | Ser | Thr | Pro | Val |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Phe | Gly | Gly | Ile | Leu | Ser | Leu | Ile | Asn | Glu | His | Arg | Ile | Leu | Ser |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Gly | Arg | Pro | Pro | Leu | Gly | Phe | Leu | Asn | Pro | Arg | Leu | Tyr | Gln | Gln |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |
| His | Gly | Ala | Gly | Leu | Phe | Asp | Val | Thr | Arg | Gly | Cys | His | Glu | Ser |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |
| Cys | Leu | Asp | Glu | Glu | Val | Glu | Gly | Gln | Gly | Phe | Cys | Ser | Gly | Pro |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Gly | Trp | Asp | Pro | Val | Thr | Gly | Trp | Gly | Thr | Pro | Thr | Ser | Gln | Leu |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |

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<211> 1638
<212> DNA
<213> Homo Sapien
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attccagggc tcctcttctt tctcttcttt ctgtctctgt ctgttgggca 150
agtgagccct tacagtgcc cctggaaacc cacttggcct gcataccgcc 200
tccctgtcgt cttgccccag tctaccctca atttagccaa gccagacttt 250
ggagccgaag ccaaattaga agtatcttct tcatgtggac ccagtggtca 300
taagggaact ccactgccc cttacgaaga ggccaagcaa tatctgtctt 350
atgaaacgct ctatgccaat ggcagccgca cagagacgca ggtgggcatc 400
tacatcctca gcagtagtgg agatggggcc caacaccgag actcagggtc 450
ttcaggaaaag tctcgaagga agcggcagat ttatggctat gacagcaggt 500
tcagcatttt tgggaaggac ttctgtctca actacccttt ctcaacatca 550
gtgaagtatt ccacgggctg caccggcacc ctggtggcag agaagcatgt 600
cctcacagct gccactgca tacacgatgg aaaaacctat gtgaaaggaa 650
cccagaagct tcgagtgggc ttcttaaagc ccaagtttaa agatgggtgt 700
cgagggggcca acgactccac ttcagccatg cccgagcaga tgaaatttca 750
gtggatccgg gtgaaacgca cccatgtgcc caagggttgg atcaagggca 800
atgccaatga catcggcatg gattatgatt atgccctcct ggaactcaaa 850
aagccccaca agagaaaatt tatgaagatt ggggtgagcc ctctgtctaa 900
gcagctgcca gggggcagaa ttcacttctc tggttatgac aatgaccgac 950
caggcaattt ggtgtatcgc ttctgtgacg tcaaagacga gacctatgac 1000
ttgtcttacc agcaatgcga tgcccagcca ggggccagcg ggtctgggg 1050
ctatgtgagg atgtggaaga gacagcagca gaagtgggag cgaaaaatta 1100

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ttggcatttt ttcagggcac cagtgggtgg acatgaatgg ttccccacag 1150  
 gatttcaacg tggctgtcag aatcactcct ctcaaatatg cccagatttg 1200  
 ctattggatt aaaggaaact acctggattg tagggagggg tgacacagtg 1250  
 ttcctcctg gcagcaatta agggctcttca tgttcttatt ttaggagagg 1300  
 ccaaattgtt ttttgtcatt ggcgtgcaca cgtgtgtgtg tgtgtgtgtg 1350  
 tgtgtgtaag gtgtcttata atcttttacc tatttcttac aattgcaaga 1400  
 tgactggctt tactatttga aaactgggtt gtgtatcata tcatatatca 1450  
 ttttaagcagt ttgaaggcat acttttgcac agaaataaaa aaaataactga 1500  
 tttggggcaa tgaggaatat ttgacaatta agttaatctt cacgtttttg 1550  
 caaactttga tttttatttc atctgaactt gtttcaaaga tttatattaa 1600  
 atatttggca tacaagagat atgaaaaaaaa aaaaaaaaa 1638

<210> 261

<211> 383

<212> PRT

<213> Homo Sapien

<400> 261

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gly | Ile | Pro | Gly | Leu | Leu | Phe | Leu | Leu | Phe | Phe | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Cys | Ala | Val | Gly | Gln | Val | Ser | Pro | Tyr | Ser | Ala | Pro | Trp | Lys | Pro |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Thr | Trp | Pro | Ala | Tyr | Arg | Leu | Pro | Val | Val | Leu | Pro | Gln | Ser | Thr |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Asn | Leu | Ala | Lys | Pro | Asp | Phe | Gly | Ala | Glu | Ala | Lys | Leu | Glu |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Val | Ser | Ser | Ser | Cys | Gly | Pro | Gln | Cys | His | Lys | Gly | Thr | Pro | Leu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Pro | Thr | Tyr | Glu | Glu | Ala | Lys | Gln | Tyr | Leu | Ser | Tyr | Glu | Thr | Leu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Tyr | Ala | Asn | Gly | Ser | Arg | Thr | Glu | Thr | Gln | Val | Gly | Ile | Tyr | Ile |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Leu | Ser | Ser | Ser | Gly | Asp | Gly | Ala | Gln | His | Arg | Asp | Ser | Gly | Ser |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Ser | Gly | Lys | Ser | Arg<br>125 | Arg | Lys | Arg | Gln | Ile<br>130 | Tyr | Gly | Tyr | Asp | Ser<br>135 |
| Arg | Phe | Ser | Ile | Phe<br>140 | Gly | Lys | Asp | Phe | Leu<br>145 | Leu | Asn | Tyr | Pro | Phe<br>150 |
| Ser | Thr | Ser | Val | Lys<br>155 | Leu | Ser | Thr | Gly | Cys<br>160 | Thr | Gly | Thr | Leu | Val<br>165 |
| Ala | Glu | Lys | His | Val<br>170 | Leu | Thr | Ala | Ala | His<br>175 | Cys | Ile | His | Asp | Gly<br>180 |
| Lys | Thr | Tyr | Val | Lys<br>185 | Gly | Thr | Gln | Lys | Leu<br>190 | Arg | Val | Gly | Phe | Leu<br>195 |
| Lys | Pro | Lys | Phe | Lys<br>200 | Asp | Gly | Gly | Arg | Gly<br>205 | Ala | Asn | Asp | Ser | Thr<br>210 |
| Ser | Ala | Met | Pro | Glu<br>215 | Gln | Met | Lys | Phe | Gln<br>220 | Trp | Ile | Arg | Val | Lys<br>225 |
| Arg | Thr | His | Val | Pro<br>230 | Lys | Gly | Trp | Ile | Lys<br>235 | Gly | Asn | Ala | Asn | Asp<br>240 |
| Ile | Gly | Met | Asp | Tyr<br>245 | Asp | Tyr | Ala | Leu | Leu<br>250 | Glu | Leu | Lys | Lys | Pro<br>255 |
| His | Lys | Arg | Lys | Phe<br>260 | Met | Lys | Ile | Gly | Val<br>265 | Ser | Pro | Pro | Ala | Lys<br>270 |
| Gln | Leu | Pro | Gly | Gly<br>275 | Arg | Ile | His | Phe | Ser<br>280 | Gly | Tyr | Asp | Asn | Asp<br>285 |
| Arg | Pro | Gly | Asn | Leu<br>290 | Val | Tyr | Arg | Phe | Cys<br>295 | Asp | Val | Lys | Asp | Glu<br>300 |
| Thr | Tyr | Asp | Leu | Leu<br>305 | Tyr | Gln | Gln | Cys | Asp<br>310 | Ala | Gln | Pro | Gly | Ala<br>315 |
| Ser | Gly | Ser | Gly | Val<br>320 | Tyr | Val | Arg | Met | Trp<br>325 | Lys | Arg | Gln | Gln | Gln<br>330 |
| Lys | Trp | Glu | Arg | Lys<br>335 | Ile | Ile | Gly | Ile | Phe<br>340 | Ser | Gly | His | Gln | Trp<br>345 |
| Val | Asp | Met | Asn | Gly<br>350 | Ser | Pro | Gln | Asp | Phe<br>355 | Asn | Val | Ala | Val | Arg<br>360 |
| Ile | Thr | Pro | Leu | Lys<br>365 | Tyr | Ala | Gln | Ile | Cys<br>370 | Tyr | Trp | Ile | Lys | Gly<br>375 |
| Asn | Tyr | Leu | Asp | Cys<br>380 | Arg | Glu | Gly |     |            |     |     |     |     |            |

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 <211> 1378  
 <212> DNA  
 <213> Homo Sapien

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 ccatgggtggt ttctggagcg cccccagccc tgggtggggg ctgtctcggc 100  
 accttcacct ccctgctgct gctggcgctcg acagccatcc tcaatgcggc 150  
 caggataacct gttccccag cctgtgggaa gccccagcag ctgaaccggg 200  
 ttgtggggcg cgaggacagc actgacagcg agtggccctg gatcgtgagc 250  
 atccagaaga atgggaccca ccaactgcgc ggttctctgc tcaccagccg 300  
 ctgggtgata actgctgccc actgtttcaa ggacaacctg aacaaaccat 350  
 acctgttctc tgtgctgctg ggggcctggc agctggggaa ccctggctct 400  
 cggctccaga aggtgggtgt tgctgggtg gagccccacc ctgtgtattc 450  
 ctggaaggaa ggtgcctgtg cagacattgc cctggtgcgt ctgcagcgct 500  
 ccatacagtt ctgcagagcg gtctgccc tctgcctacc tgatgcctct 550  
 atccacctcc ctccaaacac ccaactgctg atctcaggct gggggagcat 600  
 ccaagatgga gttcccttgc cccaccctca gaccctgcag aagctgaagg 650  
 ttctatcat cgactcgga gtctgcagcc atctgtactg gcggggagca 700  
 ggacagggac ccatcactga ggacatgctg tgtgccggct acttgaggag 750  
 ggagcgggat gcttgcttg gcgactccgg gggccccctc atgtgccagg 800  
 tggacggcgc ctggctgctg gccggcatca tcagctgggg cgagggctgt 850  
 gccgagcgca acaggccccg ggtctacatc agcctctctg cgcaccgctc 900  
 ctgggtggag aagatcgtgc aaggggtgca gctccgcggg cgcgctcagg 950  
 ggggtggggc cctcagggca ccgagccagg gctctggggc cgccgcgcgc 1000  
 tctagggcg cagcgggacg cggggctcgg atctgaaagg cggccagatc 1050  
 cacatctgga tctggatctg cggcggcctc gggcggtttc cccgcctga 1100  
 aataggctca tctacctta cctctggggg cccggacggc tgctgcggaa 1150

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<210> 263
<211> 317
<212> PRT
<213> Homo Sapien.
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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Val | Ser | Gly | Ala | Pro | Pro | Ala | Leu | Gly | Gly | Gly | Cys | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Gly | Thr | Phe | Thr | Ser | Leu | Leu | Leu | Leu | Ala | Ser | Thr | Ala | Ile | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Asn | Ala | Ala | Arg | Ile | Pro | Val | Pro | Pro | Ala | Cys | Gly | Lys | Pro | Gln |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Gln | Leu | Asn | Arg | Val | Val | Gly | Gly | Glu | Asp | Ser | Thr | Asp | Ser | Glu |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Trp | Pro | Trp | Ile | Val | Ser | Ile | Gln | Lys | Asn | Gly | Thr | His | His | Cys |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ala | Gly | Ser | Leu | Leu | Thr | Ser | Arg | Trp | Val | Ile | Thr | Ala | Ala | His |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Cys | Phe | Lys | Asp | Asn | Leu | Asn | Lys | Pro | Tyr | Leu | Phe | Ser | Val | Leu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Leu | Gly | Ala | Trp | Gln | Leu | Gly | Asn | Pro | Gly | Ser | Arg | Ser | Gln | Lys |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Val | Gly | Val | Ala | Trp | Val | Glu | Pro | His | Pro | Val | Tyr | Ser | Trp | Lys |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Glu | Gly | Ala | Cys | Ala | Asp | Ile | Ala | Leu | Val | Arg | Leu | Glu | Arg | Ser |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Ile | Gln | Phe | Ser | Glu | Arg | Val | Leu | Pro | Ile | Cys | Leu | Pro | Asp | Ala |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ser | Ile | His | Leu | Pro | Pro | Asn | Thr | His | Cys | Trp | Ile | Ser | Gly | Trp |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |

|   |                         |
|---|-------------------------|
| Gly Ser Ile Gln Asp Gly Val Pro Leu                         | Pro His Pro Gln Thr Leu |
| 185   | 190 195                 |
| Gln Lys Leu Lys Val Pro Ile Ile Asp Ser Glu Val Cys Ser His |                         |
| 200   | 205 210                 |
| Leu Tyr Trp Arg Gly Ala Gly Gln Gly Pro Ile Thr Glu Asp Met |                         |
| 215   | 220 225                 |
| Leu Cys Ala Gly Tyr Leu Glu Gly Glu Arg Asp Ala Cys Leu Gly |                         |
| 230   | 235 240                 |
| Asp Ser Gly Gly Pro Leu Met Cys Gln Val Asp Gly Ala Trp Leu |                         |
| 245   | 250 255                 |
| Leu Ala Gly Ile Ile Ser Trp Gly Glu Gly Cys Ala Glu Arg Asn |                         |
| 260   | 265 270                 |
| Arg Pro Gly Val Tyr Ile Ser Leu Ser Ala His Arg Ser Trp Val |                         |
| 275   | 280 285                 |
| Glu Lys Ile Val Gln Gly Val Gln Leu Arg Gly Arg Ala Gln Gly |                         |
| 290   | 295 300                 |
| Gly Gly Ala Leu Arg Ala Pro Ser Gln Gly Ser Gly Ala Ala Ala |                         |
| 305   | 310 315                 |

Arg Ser

<210> 264

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 264

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<210> 265

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 265

gcagaggtgt ctaaggttg 19

<210> 266

<211> 24



<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 266

agctctagac caatgccagc ttcc 24

<210> 267

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 267

gccaccaact cctgcaagaa cttctcagaa ctgcccctgg tcatg 45

<210> 268

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 268

ggggaattca ccctatgaca ttgcc 25

<210> 269

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 269

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<210> 270

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 270

gcacctgtca cctacactaa acacatccag cccatctgtc tccaggcctc 50

<210> 271  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic Oligonucleotide Probe

<400> 271  
gcggaagggc agaatgggac tccaag 26

<210> 272  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic Oligonucleotide Probe

<400> 272  
cagccctgcc acatgtgc 18

<210> 273  
<211> 18  
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<220>  
<223> Synthetic Oligonucleotide Probe

<400> 273  
tactgggtgg tcagcaac 18

<210> 274  
<211> 24  
<212> DNA  
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<220>  
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<400> 274  
ggcgaagagc agggtgagac cccg 24

<210> 275  
<211> 45

<212> DNA  
<213> Artificial Sequence

<220>  
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<210> 276
<211> 21
<212> DNA
<213> Artificial Sequence
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<400> 276
qqqcagggat tccagggctc c 21
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```
<210> 277
<211> 18
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic Oligonucleotide Probe

<400> 277  
ggctatgaca gcagggttc 18

```
<210> 278
<211> 18
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic Oligonucleotide Probe

<400> 278  
tgacaatgac cgaccagg 18

```
<210> 279
<211> 24
<212> DNA
<213> Artificial Sequence
```

<220>  
<223> Synthetic Oligonucleotide Probe

<400> 279  
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```
<210> 280
<211> 45
<212> DNA
<213> Artificial Sequence
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<220>

<223> Synthetic Oligonucleotide Probe

<400> 280

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<210> 281

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

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<212> DNA

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<220>

<223> Synthetic Oligonucleotide Probe

<400> 282

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tgccaggtgg a 61

<210> 283

<211> 119

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 283

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atgctgtgtg ccggctact 119

<210> 284

<211> 1875

<212> DNA

<213> Homo Sapien

<400> 284

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ccgctactgc tactgctggt ggccaccaca ggccccgttg gagccctcac 100

agatgaggag aaacgtttga tgggtggagct gcacaacctc taccggggccc 150  
 aggtatcccc gacggcctca gacatgctgc acatgagatg ggacgaggag 200  
 ctggccgcct tcgccaaggc ctacgcacgg cagtgcgtgt gggggccacaa 250  
 caaggagcgc gggcgccgcg gcgagaatct gttcgccatc acagacgagg 300  
 gcatggacgt gccgctggcc atggaggagt ggcaccacga gcgtgagcac 350  
 tacaacctca gcgccgccac ctgcagccca ggccagatgt gcggccacta 400  
 cacgcaggtg gtatgggcca agacagagag gatcggctgt ggttcccact 450  
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<213> Homo Sapien

<400> 285

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|
| Met | His | Gly | Ser | Cys | Ser | Phe | Leu | Met | Leu | Leu | Leu | Pro | Leu | Leu |  |  |  |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |  |  |  |  |
| Leu | Leu | Leu | Val | Ala | Thr | Thr | Gly | Pro | Val | Gly | Ala | Leu | Thr | Asp |  |  |  |  |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |  |  |  |  |
| Glu | Glu | Lys | Arg | Leu | Met | Val | Glu | Leu | His | Asn | Leu | Tyr | Arg | Ala |  |  |  |  |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |  |  |  |  |
| Gln | Val | Ser | Pro | Thr | Ala | Ser | Asp | Met | Leu | His | Met | Arg | Trp | Asp |  |  |  |  |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |  |  |  |  |
| Glu | Glu | Leu | Ala | Ala | Phe | Ala | Lys | Ala | Tyr | Ala | Arg | Gln | Cys | Val |  |  |  |  |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |  |  |  |  |
| Trp | Gly | His | Asn | Lys | Glu | Arg | Gly | Arg | Arg | Gly | Glu | Asn | Leu | Phe |  |  |  |  |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |  |  |  |  |
| Ala | Ile | Thr | Asp | Glu | Gly | Met | Asp | Val | Pro | Leu | Ala | Met | Glu | Glu |  |  |  |  |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |  |  |  |  |
| Trp | His | His | Glu | Arg | Glu | His | Tyr | Asn | Leu | Ser | Ala | Ala | Thr | Cys |  |  |  |  |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |  |  |  |  |
| Ser | Pro | Gly | Gln | Met | Cys | Gly | His | Tyr | Thr | Gln | Val | Val | Trp | Ala |  |  |  |  |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |  |  |  |  |

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Lys | Thr | Glu | Arg | Ile<br>140 | Gly | Cys | Gly | Ser | His<br>145 | Phe | Cys | Glu | Lys | Leu<br>150 |
| Gln | Gly | Val | Glu | Glu<br>155 | Thr | Asn | Ile | Glu | Leu<br>160 | Leu | Val | Cys | Asn | Tyr<br>165 |
| Glu | Pro | Pro | Gly | Asn<br>170 | Val | Lys | Gly | Lys | Arg<br>175 | Pro | Tyr | Gln | Glu | Gly<br>180 |
| Thr | Pro | Cys | Ser | Gln<br>185 | Cys | Pro | Ser | Gly | Tyr<br>190 | His | Cys | Lys | Asn | Ser<br>195 |
| Leu | Cys | Glu | Pro | Ile<br>200 | Gly | Ser | Pro | Glu | Asp<br>205 | Ala | Gln | Asp | Leu | Pro<br>210 |
| Tyr | Leu | Val | Thr | Glu<br>215 | Ala | Pro | Ser | Phe | Arg<br>220 | Ala | Thr | Glu | Ala | Ser<br>225 |
| Asp | Ser | Arg | Lys | Met<br>230 | Gly | Thr | Pro | Ser | Ser<br>235 | Leu | Ala | Thr | Gly | Ile<br>240 |
| Pro | Ala | Phe | Leu | Val<br>245 | Thr | Glu | Val | Ser | Gly<br>250 | Ser | Leu | Ala | Thr | Lys<br>255 |
| Ala | Leu | Pro | Ala | Val<br>260 | Glu | Thr | Gln | Ala | Pro<br>265 | Thr | Ser | Leu | Ala | Thr<br>270 |
| Lys | Asp | Pro | Pro | Ser<br>275 | Met | Ala | Thr | Glu | Ala<br>280 | Pro | Pro | Cys | Val | Thr<br>285 |
| Thr | Glu | Val | Pro | Ser<br>290 | Ile | Leu | Ala | Ala | His<br>295 | Ser | Leu | Pro | Ser | Leu<br>300 |
| Asp | Glu | Glu | Pro | Val<br>305 | Thr | Phe | Pro | Lys | Ser<br>310 | Thr | His | Val | Pro | Ile<br>315 |
| Pro | Lys | Ser | Ala | Asp<br>320 | Lys | Val | Thr | Asp | Lys<br>325 | Thr | Lys | Val | Pro | Ser<br>330 |
| Arg | Ser | Pro | Glu | Asn<br>335 | Ser | Leu | Asp | Pro | Lys<br>340 | Met | Ser | Leu | Thr | Gly<br>345 |
| Ala | Arg | Glu | Leu | Leu<br>350 | Pro | His | Ala | Gln | Glu<br>355 | Glu | Ala | Glu | Ala | Glu<br>360 |
| Ala | Glu | Leu | Pro | Pro<br>365 | Ser | Ser | Glu | Val | Leu<br>370 | Ala | Ser | Val | Phe | Pro<br>375 |
| Ala | Gln | Asp | Lys | Pro<br>380 | Gly | Glu | Leu | Gln | Ala<br>385 | Thr | Leu | Asp | His | Thr<br>390 |
| Gly | His | Thr | Ser | Ser<br>395 | Lys | Ser | Leu | Pro | Asn<br>400 | Phe | Pro | Asn | Thr | Ser<br>405 |

Ala Thr Ala Asn Ala Thr Gly Gly Arg Ala Leu Ala Leu Gln Ser  
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Ser Leu Pro Gly Ala Glu Gly Pro Asp Lys Pro Ser Val Val Ser  
 425 430 435

Gly Leu Asn Ser Gly Pro Gly His Val Trp Gly Pro Leu Leu Gly  
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Leu Leu Leu Leu Pro Pro Leu Val Leu Ala Gly Ile Phe  
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<400> 287

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<210> 289

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| caaggcaagt  | tccatgagcc  | accttcaaag | ccttcgagaa | gtgaaactga | 200  |
| acaacaatga  | attggagacc  | attccaaatc | tgggaccagt | ctcggcaaat | 250  |
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| acatctgaaa  | gagtttcagt  | cccttgaaac | tttggacctt | agcagcaaca | 350  |
| atatttcaga  | gctccaaact  | gcatttccag | ccctacagct | caaatatctg | 400  |
| tatctcaaca  | gcaaccgagt  | cacatcaatg | gaacctgggt | attttgacaa | 450  |
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| aacaacctaa  | cagagattac  | caaaggctgg | ctttacggct | tgctgatgct | 750  |
| gcaggaactt  | catctcagcc  | aaaatgccat | caacaggatc | agccctgatg | 800  |
| cctgggagtt  | ctgccagaag  | ctcagtgagc | tggacctaac | tttcaatcac | 850  |
| ttatcaaggt  | tagatgattc  | aagcttcctt | ggcctaagct | tactaaatac | 900  |
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| ggggggctttc | cagtttaaag  | actttggatc | tgaagaacaa | tgaaatttcc | 1000 |
| tggactattg  | aagacatgaa  | tggtgctttc | tctgggcttg | acaaactgag | 1050 |
| gcgactgata  | ctccaaggaa  | atcggatccg | ttctattact | aaaaaagcct | 1100 |
| tcactggttt  | ggatgcattg  | gagcatctag | acctgagtga | caacgcaatc | 1150 |
| atgtctttac  | aaggcaatgc  | attttcacaa | atgaagaaac | tgcaacaatt | 1200 |
| gcattttaat  | acatcaagcc  | ttttgtgcga | ttgccagcta | aaatggctcc | 1250 |
| cacagtgggt  | ggcggaaaaac | aactttcaga | gctttgtaaa | tgccagttgt | 1300 |
| gcccatcctc  | agctgctaaa  | aggaagaagc | atttttgctg | ttagcccaga | 1350 |



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<212> PRT

<213> Homo Sapien

<400> 290

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Asp | Val | Leu | Leu | Phe | Ser | Leu | Cys | Leu | Leu | Phe | His |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ser | Arg | Pro | Asp | Leu | Ser | His | Asn | Arg | Leu | Ser | Phe | Ile | Lys |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |

|     |     |     |     |  |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ser | Ser | Met |  | Ser | His | Leu | Gln | Ser |     | Leu | Arg | Glu | Val | Lys | Leu |
|     |     |     |     |  | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |
| Asn | Asn | Asn | Glu |  | Leu | Glu | Thr | Ile | Pro | Asn | Leu | Gly | Pro | Val |     | Ser |
|     |     |     |     |  | 50  |     |     |     |     | 55  |     |     |     |     |     | 60  |
| Ala | Asn | Ile | Thr |  | Leu | Leu | Ser | Leu | Ala | Gly | Asn | Arg | Ile | Val |     | Glu |
|     |     |     |     |  | 65  |     |     |     |     | 70  |     |     |     |     |     | 75  |
| Ile | Leu | Pro | Glu |  | His | Leu | Lys | Glu | Phe | Gln | Ser | Leu | Glu | Thr |     | Leu |
|     |     |     |     |  | 80  |     |     |     |     | 85  |     |     |     |     |     | 90  |
| Asp | Leu | Ser | Ser |  | Asn | Asn | Ile | Ser | Glu | Leu | Gln | Thr | Ala | Phe |     | Pro |
|     |     |     |     |  | 95  |     |     |     |     | 100 |     |     |     |     |     | 105 |
| Ala | Leu | Gln | Leu |  | Lys | Tyr | Leu | Tyr | Leu | Asn | Ser | Asn | Arg | Val |     | Thr |
|     |     |     |     |  | 110 |     |     |     |     | 115 |     |     |     |     |     | 120 |
| Ser | Met | Glu | Pro |  | Gly | Tyr | Phe | Asp | Asn | Leu | Ala | Asn | Thr | Leu |     | Leu |
|     |     |     |     |  | 125 |     |     |     |     | 130 |     |     |     |     |     | 135 |
| Val | Leu | Lys | Leu |  | Asn | Arg | Asn | Arg | Ile | Ser | Ala | Ile | Pro | Pro |     | Lys |
|     |     |     |     |  | 140 |     |     |     |     | 145 |     |     |     |     |     | 150 |
| Met | Phe | Lys | Leu |  | Pro | Gln | Leu | Gln | His | Leu | Glu | Leu | Asn | Arg |     | Asn |
|     |     |     |     |  | 155 |     |     |     |     | 160 |     |     |     |     |     | 165 |
| Lys | Ile | Lys | Asn |  | Val | Asp | Gly | Leu | Thr | Phe | Gln | Gly | Leu | Gly |     | Ala |
|     |     |     |     |  | 170 |     |     |     |     | 175 |     |     |     |     |     | 180 |
| Leu | Lys | Ser | Leu |  | Lys | Met | Gln | Arg | Asn | Gly | Val | Thr | Lys | Leu |     | Met |
|     |     |     |     |  | 185 |     |     |     |     | 190 |     |     |     |     |     | 195 |
| Asp | Gly | Ala | Phe |  | Trp | Gly | Leu | Ser | Asn | Met | Glu | Ile | Leu | Gln |     | Leu |
|     |     |     |     |  | 200 |     |     |     |     | 205 |     |     |     |     |     | 210 |
| Asp | His | Asn | Asn |  | Leu | Thr | Glu | Ile | Thr | Lys | Gly | Trp | Leu | Tyr |     | Gly |
|     |     |     |     |  | 215 |     |     |     |     | 220 |     |     |     |     |     | 225 |
| Leu | Leu | Met | Leu |  | Gln | Glu | Leu | His | Leu | Ser | Gln | Asn | Ala | Ile |     | Asn |
|     |     |     |     |  | 230 |     |     |     |     | 235 |     |     |     |     |     | 240 |
| Arg | Ile | Ser | Pro |  | Asp | Ala | Trp | Glu | Phe | Cys | Gln | Lys | Leu | Ser |     | Glu |
|     |     |     |     |  | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |
| Leu | Asp | Leu | Thr |  | Phe | Asn | His | Leu | Ser | Arg | Leu | Asp | Asp | Ser |     | Ser |
|     |     |     |     |  | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |
| Phe | Leu | Gly | Leu |  | Ser | Leu | Leu | Asn | Thr | Leu | His | Ile | Gly | Asn |     | Asn |
|     |     |     |     |  | 275 |     |     |     |     | 280 |     |     |     |     |     | 285 |
| Arg | Val | Ser | Tyr |  | Ile | Ala | Asp | Cys | Ala | Phe | Arg | Gly | Leu | Ser |     | Ser |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|-----|--|
| 290 |     |     |     |     |     |     |     |     |     |     |     |     |     | 295 |  |  |  |  | 300 |  |
| Leu | Lys | Thr | Leu | Asp | Leu | Lys | Asn | Asn | Glu | Ile | Ser | Trp | Thr | Ile |  |  |  |  |     |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |  |  |  |     |  |
| Glu | Asp | Met | Asn | Gly | Ala | Phe | Ser | Gly | Leu | Asp | Lys | Leu | Arg | Arg |  |  |  |  |     |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |  |  |  |     |  |
| Leu | Ile | Leu | Gln | Gly | Asn | Arg | Ile | Arg | Ser | Ile | Thr | Lys | Lys | Ala |  |  |  |  |     |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |  |  |  |     |  |
| Phe | Thr | Gly | Leu | Asp | Ala | Leu | Glu | His | Leu | Asp | Leu | Ser | Asp | Asn |  |  |  |  |     |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |  |  |  |     |  |
| Ala | Ile | Met | Ser | Leu | Gln | Gly | Asn | Ala | Phe | Ser | Gln | Met | Lys | Lys |  |  |  |  |     |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |  |  |  |     |  |
| Leu | Gln | Gln | Leu | His | Leu | Asn | Thr | Ser | Ser | Leu | Leu | Cys | Asp | Cys |  |  |  |  |     |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |  |  |  |     |  |
| Gln | Leu | Lys | Trp | Leu | Pro | Gln | Trp | Val | Ala | Glu | Asn | Asn | Phe | Gln |  |  |  |  |     |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |  |  |  |     |  |
| Ser | Phe | Val | Asn | Ala | Ser | Cys | Ala | His | Pro | Gln | Leu | Leu | Lys | Gly |  |  |  |  |     |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |  |  |  |     |  |
| Arg | Ser | Ile | Phe | Ala | Val | Ser | Pro | Asp | Gly | Phe | Val | Cys | Asp | Asp |  |  |  |  |     |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |  |  |  |  |     |  |
| Phe | Pro | Lys | Pro | Gln | Ile | Thr | Val | Gln | Pro | Glu | Thr | Gln | Ser | Ala |  |  |  |  |     |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |  |  |  |  |     |  |
| Ile | Lys | Gly | Ser | Asn | Leu | Ser | Phe | Ile | Cys | Ser | Ala | Ala | Ser | Ser |  |  |  |  |     |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |  |  |  |  |     |  |
| Ser | Asp | Ser | Pro | Met | Thr | Phe | Ala | Trp | Lys | Lys | Asp | Asn | Glu | Leu |  |  |  |  |     |  |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |  |  |     |  |
| Leu | His | Asp | Ala | Glu | Met | Glu | Asn | Tyr | Ala | His | Leu | Arg | Ala | Gln |  |  |  |  |     |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |  |  |  |  |     |  |
| Gly | Gly | Glu | Val | Met | Glu | Tyr | Thr | Thr | Ile | Leu | Arg | Leu | Arg | Glu |  |  |  |  |     |  |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |  |  |  |  |     |  |
| Val | Glu | Phe | Ala | Ser | Glu | Gly | Lys | Tyr | Gln | Cys | Val | Ile | Ser | Asn |  |  |  |  |     |  |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |  |  |  |  |     |  |
| His | Phe | Gly | Ser | Ser | Tyr | Ser | Val | Lys | Ala | Lys | Leu | Thr | Val | Asn |  |  |  |  |     |  |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |  |  |  |  |     |  |
| Met | Leu | Pro | Ser | Phe | Thr | Lys | Thr | Pro | Met | Asp | Leu | Thr | Ile | Arg |  |  |  |  |     |  |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |  |  |  |  |     |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Gly | Ala | Met | Ala | Arg | Leu | Glu | Cys | Ala | Ala | Val | Gly | His | Pro |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Ala | Pro | Gln | Ile | Ala | Trp | Gln | Lys | Asp | Gly | Gly | Thr | Asp | Phe | Pro |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Ala | Ala | Arg | Glu | Arg | Arg | Met | His | Val | Met | Pro | Glu | Asp | Asp | Val |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Phe | Phe | Ile | Val | Asp | Val | Lys | Ile | Glu | Asp | Ile | Gly | Val | Tyr | Ser |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |
| Cys | Thr | Ala | Gln | Asn | Ser | Ala | Gly | Ser | Ile | Ser | Ala | Asn | Ala | Thr |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |
| Leu | Thr | Val | Leu | Glu | Thr | Pro | Ser | Phe | Leu | Arg | Pro | Leu | Leu | Asp |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |
| Arg | Thr | Val | Thr | Lys | Gly | Glu | Thr | Ala | Val | Leu | Gln | Cys | Ile | Ala |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |
| Gly | Gly | Ser | Pro | Pro | Pro | Lys | Leu | Asn | Trp | Thr | Lys | Asp | Asp | Ser |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |
| Pro | Leu | Val | Val | Thr | Glu | Arg | His | Phe | Phe | Ala | Ala | Gly | Asn | Gln |
|     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |     | 690 |
| Leu | Leu | Ile | Ile | Val | Asp | Ser | Asp | Val | Ser | Asp | Ala | Gly | Lys | Tyr |
|     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     | 705 |
| Thr | Cys | Glu | Met | Ser | Asn | Thr | Leu | Gly | Thr | Glu | Arg | Gly | Asn | Val |
|     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Arg | Leu | Ser | Val | Ile | Pro | Thr | Pro | Thr | Cys | Asp | Ser | Pro | Gln | Met |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |
| Thr | Ala | Pro | Ser | Leu | Asp | Asp | Asp | Gly | Trp | Ala | Thr | Val | Gly | Val |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |
| Val | Ile | Ile | Ala | Val | Val | Cys | Cys | Val | Val | Gly | Thr | Ser | Leu | Val |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |
| Trp | Val | Val | Ile | Ile | Tyr | His | Thr | Arg | Arg | Arg | Asn | Glu | Asp | Cys |
|     |     |     |     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |
| Ser | Ile | Thr | Asn | Thr | Asp | Glu | Thr | Asn | Leu | Pro | Ala | Asp | Ile | Pro |
|     |     |     |     | 785 |     |     |     |     | 790 |     |     |     |     | 795 |
| Ser | Tyr | Leu | Ser | Ser | Gln | Gly | Thr | Leu | Ala | Asp | Arg | Gln | Asp | Gly |
|     |     |     |     | 800 |     |     |     |     | 805 |     |     |     |     | 810 |

Tyr Val Ser Ser Glu Ser Gly Ser His His Gln Phe Val Thr Ser  
 815 820 825  
 Ser Gly Ala Gly Phe Phe Leu Pro Gln His Asp Ser Ser Gly Thr  
 830 835 840  
 Cys His Ile Asp Asn Ser Ser Glu Ala Asp Val Glu Ala Ala Thr  
 845 850 855  
 Asp Leu Phe Leu Cys Pro Phe Leu Gly Ser Thr Gly Pro Met Tyr  
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&lt;210&gt; 291

&lt;211&gt; 2906

<213> Homo Sapien

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| tggaaccgaa | cgcaatggat | aaactgattg | tgcaagagag  | aaggaagaac  | 150  |
| gaagcttttt | cttgtgagcc | ctggatctta | acacaaatgt  | gtatatgtgc  | 200  |
| acacagggag | cattcaagaa | tgaaataaac | cagagttaga  | cccgcggggg  | 250  |
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| ttcatcaacc | tccttttttt | taaattttta | ttccttttgg  | tatcaagatc  | 700  |
| atgcgttttc | tcttgttctt | aaccacctgg | atttccatct  | ggatgttgct  | 750  |
| gtgatcagtc | tgaaatacaa | ctgtttgaat | tccagaagga  | ccaacaccag  | 800  |
| ataaattatg | aatgttgaac | aagatgacct | tacatccaca  | gcagataatg  | 850  |
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| gctggctctt | caacttcttg | tggtggctgg | tctggtgctg  | gctcagacct  | 950  |
| gcccttctgt | gtgctcctgc | agcaaccagt | tcagcaaggt  | gatttgtggt  | 1000 |
| cggaaaaacc | tgcgtgaggt | tccggatggc | atctccacca  | acacacggct  | 1050 |
| gctgaacctc | catgagaacc | aatccagat  | catcaaagtg  | aacagcttca  | 1100 |
| agcacttgag | gcacttgga  | atcctacagt | tgagtaggaa  | ccatatcaga  | 1150 |
| accattgaaa | ttggggcttt | caatggtctg | gcgaacctca  | acactctgga  | 1200 |
| actctttgac | aatcgtctta | ctaccatccc | gaatggagct  | tttgtatact  | 1250 |



[illegible]

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 caaaaa 2906

<210> 292

<211> 640

<212> PRT

<213> Homo Sapien

<400> 292

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Asn | Lys | Met | Thr | Leu | His | Pro | Gln | Gln | Ile | Met | Ile | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Pro | Arg | Phe | Asn | Arg | Ala | Leu | Phe | Asp | Pro | Leu | Leu | Val | Val | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Leu | Ala | Leu | Gln | Leu | Leu | Val | Val | Ala | Gly | Leu | Val | Arg | Ala | Gln |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Thr | Cys | Pro | Ser | Val | Cys | Ser | Cys | Ser | Asn | Gln | Phe | Ser | Lys | Val |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ile | Cys | Val | Arg | Lys | Asn | Leu | Arg | Glu | Val | Pro | Asp | Gly | Ile | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Thr | Asn | Thr | Arg | Leu | Leu | Asn | Leu | His | Glu | Asn | Gln | Ile | Gln | Ile |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ile | Lys | Val | Asn | Ser | Phe | Lys | His | Leu | Arg | His | Leu | Glu | Ile | Leu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Gln | Leu | Ser | Arg | Asn | His | Ile | Arg | Thr | Ile | Glu | Ile | Gly | Ala | Phe |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Asn | Gly | Leu | Ala | Asn | Leu | Asn | Thr | Leu | Glu | Leu | Phe | Asp | Asn | Arg |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Leu | Thr | Thr | Ile | Pro | Asn | Gly | Ala | Phe | Val | Tyr | Leu | Ser | Lys | Leu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Lys | Glu | Leu | Trp | Leu | Arg | Asn | Asn | Pro | Ile | Glu | Ser | Ile | Pro | Ser |

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 155        |     |     |     |     | 160        |     |     |     |     | 165        |
| Tyr | Ala | Phe | Asn | Arg<br>170 | Ile | Pro | Ser | Leu | Arg<br>175 | Arg | Leu | Asp | Leu | Gly<br>180 |
| Glu | Leu | Lys | Arg | Leu<br>185 | Ser | Tyr | Ile | Ser | Glu<br>190 | Gly | Ala | Phe | Glu | Gly<br>195 |
| Leu | Ser | Asn | Leu | Arg<br>200 | Tyr | Leu | Asn | Leu | Ala<br>205 | Met | Cys | Asn | Leu | Arg<br>210 |
| Glu | Ile | Pro | Asn | Leu<br>215 | Thr | Pro | Leu | Ile | Lys<br>220 | Leu | Asp | Glu | Leu | Asp<br>225 |
| Leu | Ser | Gly | Asn | His<br>230 | Leu | Ser | Ala | Ile | Arg<br>235 | Pro | Gly | Ser | Phe | Gln<br>240 |
| Gly | Leu | Met | His | Leu<br>245 | Gln | Lys | Leu | Trp | Met<br>250 | Ile | Gln | Ser | Gln | Ile<br>255 |
| Gln | Val | Ile | Glu | Arg<br>260 | Asn | Ala | Phe | Asp | Asn<br>265 | Leu | Gln | Ser | Leu | Val<br>270 |
| Glu | Ile | Asn | Leu | Ala<br>275 | His | Asn | Asn | Leu | Thr<br>280 | Leu | Leu | Pro | His | Asp<br>285 |
| Leu | Phe | Thr | Pro | Leu<br>290 | His | His | Leu | Glu | Arg<br>295 | Ile | His | Leu | His | His<br>300 |
| Asn | Pro | Trp | Asn | Cys<br>305 | Asn | Cys | Asp | Ile | Leu<br>310 | Trp | Leu | Ser | Trp | Trp<br>315 |
| Ile | Lys | Asp | Met | Ala<br>320 | Pro | Ser | Asn | Thr | Ala<br>325 | Cys | Cys | Ala | Arg | Cys<br>330 |
| Asn | Thr | Pro | Pro | Asn<br>335 | Leu | Lys | Gly | Arg | Tyr<br>340 | Ile | Gly | Glu | Leu | Asp<br>345 |
| Gln | Asn | Tyr | Phe | Thr<br>350 | Cys | Tyr | Ala | Pro | Val<br>355 | Ile | Val | Glu | Pro | Pro<br>360 |
| Ala | Asp | Leu | Asn | Val<br>365 | Thr | Glu | Gly | Met | Ala<br>370 | Ala | Glu | Leu | Lys | Cys<br>375 |
| Arg | Ala | Ser | Thr | Ser<br>380 | Leu | Thr | Ser | Val | Ser<br>385 | Trp | Ile | Thr | Pro | Asn<br>390 |
| Gly | Thr | Val | Met | Thr<br>395 | His | Gly | Ala | Tyr | Lys<br>400 | Val | Arg | Ile | Ala | Val<br>405 |
| Leu | Ser | Asp | Gly | Thr<br>410 | Leu | Asn | Phe | Thr | Asn<br>415 | Val | Thr | Val | Gln | Asp<br>420 |

|                 |                     |                         |
|-----------------|---------------------|-------------------------|
| Thr Gly Met Tyr | Thr Cys Met Val Ser | Asn Ser Val Gly Asn Thr |
| 425             | 430                 | 435                     |
| Thr Ala Ser Ala | Thr Leu Asn Val Thr | Ala Ala Thr Thr Thr Pro |
| 440             | 445                 | 450                     |
| Phe Ser Tyr Phe | Ser Thr Val Thr Val | Glu Thr Met Glu Pro Ser |
| 455             | 460                 | 465                     |
| Gln Asp Glu Ala | Arg Thr Thr Asp Asn | Asn Val Gly Pro Thr Pro |
| 470             | 475                 | 480                     |
| Val Val Asp Trp | Glu Thr Thr Asn Val | Thr Thr Ser Leu Thr Pro |
| 485             | 490                 | 495                     |
| Gln Ser Thr Arg | Ser Thr Glu Lys Thr | Phe Thr Ile Pro Val Thr |
| 500             | 505                 | 510                     |
| Asp Ile Asn Ser | Gly Ile Pro Gly Ile | Asp Glu Val Met Lys Thr |
| 515             | 520                 | 525                     |
| Thr Lys Ile Ile | Ile Gly Cys Phe Val | Ala Ile Thr Leu Met Ala |
| 530             | 535                 | 540                     |
| Ala Val Met Leu | Val Ile Phe Tyr Lys | Met Arg Lys Gln His His |
| 545             | 550                 | 555                     |
| Arg Gln Asn His | His Ala Pro Thr Arg | Thr Val Glu Ile Ile Asn |
| 560             | 565                 | 570                     |
| Val Asp Asp Glu | Ile Thr Gly Asp Thr | Pro Met Glu Ser His Leu |
| 575             | 580                 | 585                     |
| Pro Met Pro Ala | Ile Glu His Glu His | Leu Asn His Tyr Asn Ser |
| 590             | 595                 | 600                     |
| Tyr Lys Ser Pro | Phe Asn His Thr Thr | Thr Val Asn Thr Ile Asn |
| 605             | 610                 | 615                     |
| Ser Ile His Ser | Ser Val His Glu Pro | Leu Leu Ile Arg Met Asn |
| 620             | 625                 | 630                     |
| Ser Lys Asp Asn | Val Gln Glu Thr Gln | Ile                     |
| 635             | 640                 |                         |

&lt;210&gt; 293

&lt;211&gt; 4053

&lt;212&gt; DNA

&lt;213&gt; Homo Sapien

&lt;400&gt; 293

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| gcgccggctg | ggagcttcgg | gtagagacct | aggccgctgg | accgcgatga | 250  |
| gcgcgccgag | cctccgtgcg | cgcgccgcgg | ggttggggct | gctgctgtgc | 300  |
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| cccagccac  | tcccgtcctg | ggtcgctcgg | ctggacttaa | gtcacaacag | 500  |
| attatctttc | atcaaggcaa | gttccatgag | ccaccttcaa | agccttcgag | 550  |
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| accgaatctc | agctatccca | cccaagatgt | ttaaactgcc | ccaactgcaa | 900  |
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| cagctggacc | ataacaacct | aacagagatt | accaaaggct | ggctttacgg | 1100 |
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2700

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| gaggaatgaa  | gattgcagca  | ttaccaacac  | agatgagacc  | aacttgccag | 2800 |
| cagatatctc  | tagttatttg  | tcatctcagg  | gaacgttagc  | tgacaggcag | 2850 |
| gatgggtacg  | tgtcttcaga  | aagtggaagc  | caccaccagt  | ttgtcacatc | 2900 |
| ttcaggtgct  | ggatttttct  | taccacaaca  | tgacagtagt  | gggacctgcc | 2950 |
| atattgacaa  | tagcagtgaa  | gctgatgtgg  | aagctgccac  | agatctgttc | 3000 |
| ctttgtccgt  | ttttgggatc  | cacaggccct  | atgtatttga  | agggaaatgt | 3050 |
| gtatggctca  | gacccctttg  | aaacatatca  | tacaggttgc  | agtcctgacc | 3100 |
| caagaacagt  | tttaatggac  | cactatgagc  | ccagttacat  | aaagaaaaag | 3150 |
| gagtgtctacc | catgttctca  | tccttcagaa  | gaatcctgcg  | aacggagctt | 3200 |
| cagtaatata  | tcgtggcctt  | cacatgtgag  | gaagctactt  | aacactagtt | 3250 |
| actctcacia  | tgaaggacct  | ggaatgaaaa  | atctgtgtct  | aaacaagtcc | 3300 |
| tcttttagatt | ttagtgcaaa  | tccagagcca  | gcgtcggttg  | cctcgagtaa | 3350 |
| ttctttcatg  | ggtaaccttg  | gaaaagctct  | caggagacct  | cacctagatg | 3400 |
| cctattcaag  | ctttggacag  | ccatcagatt  | gtcagccaag  | agccttttat | 3450 |
| ttgaaagctc  | attcttcccc  | agacttggac  | tctgggtcag  | aggaagatgg | 3500 |
| gaaagaaagg  | acagattttc  | aggaagaaaa  | tcacatttgt  | acctttaaac | 3550 |
| agactttaga  | aaactacagg  | actccaaatt  | ttcagtcctta | tgacttggac | 3600 |
| acatagactg  | aatgagacca  | aaggaaaagc  | ttaacatact  | acctcaagtg | 3650 |
| aacttttatt  | taaaagagag  | agaatcttat  | gttttttaaa  | tggaagtatg | 3700 |
| aattttaaaa  | ggataaaaaat | gctttattta  | tacagatgaa  | ccaaaattac | 3750 |
| aaaaagttat  | gaaaatTTTT  | atactgggaa  | tgatgctcat  | ataagaatac | 3800 |
| cttttttaaac | tatttttttaa | ctttgtttta  | tgcaaaaaag  | tatcttacgt | 3850 |
| aaattaatga  | tataaatcat  | gattattttta | tgtattttta  | taatgccaga | 3900 |
| tttcttttta  | tggaaaatga  | gttactaaag  | catttttaa   | aatacctgcc | 3950 |
| ttgtaccatt  | ttttaaatag  | aagttacttc  | attatatattt | gcacattata | 4000 |

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aaa 4053

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<211> 1119

<212> PRT

<213> Homo Sapien

<400> 294

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ser | Ala | Pro | Ser | Leu | Arg | Ala | Arg | Ala | Ala | Gly | Leu | Gly | Leu | 1   | 5   | 10  | 15 |
| Leu | Leu | Cys | Ala | Val | Leu | Gly | Arg | Ala | Gly | Arg | Ser | Asp | Ser | Gly | 20  | 25  | 30  |    |
| Gly | Arg | Gly | Glu | Leu | Gly | Gln | Pro | Ser | Gly | Val | Ala | Ala | Glu | Arg | 35  | 40  | 45  |    |
| Pro | Cys | Pro | Thr | Thr | Cys | Arg | Cys | Leu | Gly | Asp | Leu | Leu | Asp | Cys | 50  | 55  | 60  |    |
| Ser | Arg | Lys | Arg | Leu | Ala | Arg | Leu | Pro | Glu | Pro | Leu | Pro | Ser | Trp | 65  | 70  | 75  |    |
| Val | Ala | Arg | Leu | Asp | Leu | Ser | His | Asn | Arg | Leu | Ser | Phe | Ile | Lys | 80  | 85  | 90  |    |
| Ala | Ser | Ser | Met | Ser | His | Leu | Gln | Ser | Leu | Arg | Glu | Val | Lys | Leu | 95  | 100 | 105 |    |
| Asn | Asn | Asn | Glu | Leu | Glu | Thr | Ile | Pro | Asn | Leu | Gly | Pro | Val | Ser | 110 | 115 | 120 |    |
| Ala | Asn | Ile | Thr | Leu | Leu | Ser | Leu | Ala | Gly | Asn | Arg | Ile | Val | Glu | 125 | 130 | 135 |    |
| Ile | Leu | Pro | Glu | His | Leu | Lys | Glu | Phe | Gln | Ser | Leu | Glu | Thr | Leu | 140 | 145 | 150 |    |
| Asp | Leu | Ser | Ser | Asn | Asn | Ile | Ser | Glu | Leu | Gln | Thr | Ala | Phe | Pro | 155 | 160 | 165 |    |
| Ala | Leu | Gln | Leu | Lys | Tyr | Leu | Tyr | Leu | Asn | Ser | Asn | Arg | Val | Thr | 170 | 175 | 180 |    |
| Ser | Met | Glu | Pro | Gly | Tyr | Phe | Asp | Asn | Leu | Ala | Asn | Thr | Leu | Leu | 185 | 190 | 195 |    |
| Val | Leu | Lys | Leu | Asn | Arg | Asn | Arg | Ile | Ser | Ala | Ile | Pro | Pro | Lys | 200 | 205 | 210 |    |
| Met | Phe | Lys | Leu | Pro | Gln | Leu | Gln | His | Leu | Glu | Leu | Asn | Arg | Asn |     |     |     |    |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 215        |     |     |     |     | 220        |     |     |     |     | 225        |
| Lys | Ile | Lys | Asn | Val<br>230 | Asp | Gly | Leu | Thr | Phe<br>235 | Gln | Gly | Leu | Gly | Ala<br>240 |
| Leu | Lys | Ser | Leu | Lys<br>245 | Met | Gln | Arg | Asn | Gly<br>250 | Val | Thr | Lys | Leu | Met<br>255 |
| Asp | Gly | Ala | Phe | Trp<br>260 | Gly | Leu | Ser | Asn | Met<br>265 | Glu | Ile | Leu | Gln | Leu<br>270 |
| Asp | His | Asn | Asn | Leu<br>275 | Thr | Glu | Ile | Thr | Lys<br>280 | Gly | Trp | Leu | Tyr | Gly<br>285 |
| Leu | Leu | Met | Leu | Gln<br>290 | Glu | Leu | His | Leu | Ser<br>295 | Gln | Asn | Ala | Ile | Asn<br>300 |
| Arg | Ile | Ser | Pro | Asp<br>305 | Ala | Trp | Glu | Phe | Cys<br>310 | Gln | Lys | Leu | Ser | Glu<br>315 |
| Leu | Asp | Leu | Thr | Phe<br>320 | Asn | His | Leu | Ser | Arg<br>325 | Leu | Asp | Asp | Ser | Ser<br>330 |
| Phe | Leu | Gly | Leu | Ser<br>335 | Leu | Leu | Asn | Thr | Leu<br>340 | His | Ile | Gly | Asn | Asn<br>345 |
| Arg | Val | Ser | Tyr | Ile<br>350 | Ala | Asp | Cys | Ala | Phe<br>355 | Arg | Gly | Leu | Ser | Ser<br>360 |
| Leu | Lys | Thr | Leu | Asp<br>365 | Leu | Lys | Asn | Asn | Glu<br>370 | Ile | Ser | Trp | Thr | Ile<br>375 |
| Glu | Asp | Met | Asn | Gly<br>380 | Ala | Phe | Ser | Gly | Leu<br>385 | Asp | Lys | Leu | Arg | Arg<br>390 |
| Leu | Ile | Leu | Gln | Gly<br>395 | Asn | Arg | Ile | Arg | Ser<br>400 | Ile | Thr | Lys | Lys | Ala<br>405 |
| Phe | Thr | Gly | Leu | Asp<br>410 | Ala | Leu | Glu | His | Leu<br>415 | Asp | Leu | Ser | Asp | Asn<br>420 |
| Ala | Ile | Met | Ser | Leu<br>425 | Gln | Gly | Asn | Ala | Phe<br>430 | Ser | Gln | Met | Lys | Lys<br>435 |
| Leu | Gln | Gln | Leu | His<br>440 | Leu | Asn | Thr | Ser | Ser<br>445 | Leu | Leu | Cys | Asp | Cys<br>450 |
| Gln | Leu | Lys | Trp | Leu<br>455 | Pro | Gln | Trp | Val | Ala<br>460 | Glu | Asn | Asn | Phe | Gln<br>465 |
| Ser | Phe | Val | Asn | Ala<br>470 | Ser | Cys | Ala | His | Pro<br>475 | Gln | Leu | Leu | Lys | Gly<br>480 |

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Arg | Ser | Ile | Phe | Ala<br>485 | Val | Ser | Pro | Asp | Gly<br>490 | Phe | Val | Cys | Asp | Asp<br>495 |
| Phe | Pro | Lys | Pro | Gln<br>500 | Ile | Thr | Val | Gln | Pro<br>505 | Glu | Thr | Gln | Ser | Ala<br>510 |
| Ile | Lys | Gly | Ser | Asn<br>515 | Leu | Ser | Phe | Ile | Cys<br>520 | Ser | Ala | Ala | Ser | Ser<br>525 |
| Ser | Asp | Ser | Pro | Met<br>530 | Thr | Phe | Ala | Trp | Lys<br>535 | Lys | Asp | Asn | Glu | Leu<br>540 |
| Leu | His | Asp | Ala | Glu<br>545 | Met | Glu | Asn | Tyr | Ala<br>550 | His | Leu | Arg | Ala | Gln<br>555 |
| Gly | Gly | Glu | Val | Met<br>560 | Glu | Tyr | Thr | Thr | Ile<br>565 | Leu | Arg | Leu | Arg | Glu<br>570 |
| Val | Glu | Phe | Ala | Ser<br>575 | Glu | Gly | Lys | Tyr | Gln<br>580 | Cys | Val | Ile | Ser | Asn<br>585 |
| His | Phe | Gly | Ser | Ser<br>590 | Tyr | Ser | Val | Lys | Ala<br>595 | Lys | Leu | Thr | Val | Asn<br>600 |
| Met | Leu | Pro | Ser | Phe<br>605 | Thr | Lys | Thr | Pro | Met<br>610 | Asp | Leu | Thr | Ile | Arg<br>615 |
| Ala | Gly | Ala | Met | Ala<br>620 | Arg | Leu | Glu | Cys | Ala<br>625 | Ala | Val | Gly | His | Pro<br>630 |
| Ala | Pro | Gln | Ile | Ala<br>635 | Trp | Gln | Lys | Asp | Gly<br>640 | Gly | Thr | Asp | Phe | Pro<br>645 |
| Ala | Ala | Arg | Glu | Arg<br>650 | Arg | Met | His | Val | Met<br>655 | Pro | Glu | Asp | Asp | Val<br>660 |
| Phe | Phe | Ile | Val | Asp<br>665 | Val | Lys | Ile | Glu | Asp<br>670 | Ile | Gly | Val | Tyr | Ser<br>675 |
| Cys | Thr | Ala | Gln | Asn<br>680 | Ser | Ala | Gly | Ser | Ile<br>685 | Ser | Ala | Asn | Ala | Thr<br>690 |
| Leu | Thr | Val | Leu | Glu<br>695 | Thr | Pro | Ser | Phe | Leu<br>700 | Arg | Pro | Leu | Leu | Asp<br>705 |
| Arg | Thr | Val | Thr | Lys<br>710 | Gly | Glu | Thr | Ala | Val<br>715 | Leu | Gln | Cys | Ile | Ala<br>720 |
| Gly | Gly | Ser | Pro | Pro<br>725 | Pro | Lys | Leu | Asn | Trp<br>730 | Thr | Lys | Asp | Asp | Ser<br>735 |
| Pro | Leu | Val | Val | Thr<br>740 | Glu | Arg | His | Phe | Phe<br>745 | Ala | Ala | Gly | Asn | Gln<br>750 |

|     |     |     |     |            |     |     |     |     |             |     |     |     |     |             |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|
| Leu | Leu | Ile | Ile | Val<br>755 | Asp | Ser | Asp | Val | Ser<br>760  | Asp | Ala | Gly | Lys | Tyr<br>765  |
| Thr | Cys | Glu | Met | Ser<br>770 | Asn | Thr | Leu | Gly | Thr<br>775  | Glu | Arg | Gly | Asn | Val<br>780  |
| Arg | Leu | Ser | Val | Ile<br>785 | Pro | Thr | Pro | Thr | Cys<br>790  | Asp | Ser | Pro | Gln | Met<br>795  |
| Thr | Ala | Pro | Ser | Leu<br>800 | Asp | Asp | Asp | Gly | Trp<br>805  | Ala | Thr | Val | Gly | Val<br>810  |
| Val | Ile | Ile | Ala | Val<br>815 | Val | Cys | Cys | Val | Val<br>820  | Gly | Thr | Ser | Leu | Val<br>825  |
| Trp | Val | Val | Ile | Ile<br>830 | Tyr | His | Thr | Arg | Arg<br>835  | Arg | Asn | Glu | Asp | Cys<br>840  |
| Ser | Ile | Thr | Asn | Thr<br>845 | Asp | Glu | Thr | Asn | Leu<br>850  | Pro | Ala | Asp | Ile | Pro<br>855  |
| Ser | Tyr | Leu | Ser | Ser<br>860 | Gln | Gly | Thr | Leu | Ala<br>865  | Asp | Arg | Gln | Asp | Gly<br>870  |
| Tyr | Val | Ser | Ser | Glu<br>875 | Ser | Gly | Ser | His | His<br>880  | Gln | Phe | Val | Thr | Ser<br>885  |
| Ser | Gly | Ala | Gly | Phe<br>890 | Phe | Leu | Pro | Gln | His<br>895  | Asp | Ser | Ser | Gly | Thr<br>900  |
| Cys | His | Ile | Asp | Asn<br>905 | Ser | Ser | Glu | Ala | Asp<br>910  | Val | Glu | Ala | Ala | Thr<br>915  |
| Asp | Leu | Phe | Leu | Cys<br>920 | Pro | Phe | Leu | Gly | Ser<br>925  | Thr | Gly | Pro | Met | Tyr<br>930  |
| Leu | Lys | Gly | Asn | Val<br>935 | Tyr | Gly | Ser | Asp | Pro<br>940  | Phe | Glu | Thr | Tyr | His<br>945  |
| Thr | Gly | Cys | Ser | Pro<br>950 | Asp | Pro | Arg | Thr | Val<br>955  | Leu | Met | Asp | His | Tyr<br>960  |
| Glu | Pro | Ser | Tyr | Ile<br>965 | Lys | Lys | Lys | Glu | Cys<br>970  | Tyr | Pro | Cys | Ser | His<br>975  |
| Pro | Ser | Glu | Glu | Ser<br>980 | Cys | Glu | Arg | Ser | Phe<br>985  | Ser | Asn | Ile | Ser | Trp<br>990  |
| Pro | Ser | His | Val | Arg<br>995 | Lys | Leu | Leu | Asn | Thr<br>1000 | Ser | Tyr | Ser | His | Asn<br>1005 |
| Glu | Gly | Pro | Gly | Met        | Lys | Asn | Leu | Cys | Leu         | Asn | Lys | Ser | Ser | Leu         |

| 1010  | 1015 | 1020 |
|---|------|------|
| Asp Phe Ser Ala Asn Pro Glu Pro Ala Ser Val Ala Ser Ser Asn |      |      |
| 1025  | 1030 | 1035 |
| Ser Phe Met Gly Thr Phe Gly Lys Ala Leu Arg Arg Pro His Leu |      |      |
| 1040  | 1045 | 1050 |
| Asp Ala Tyr Ser Ser Phe Gly Gln Pro Ser Asp Cys Gln Pro Arg |      |      |
| 1055  | 1060 | 1065 |
| Ala Phe Tyr Leu Lys Ala His Ser Ser Pro Asp Leu Asp Ser Gly |      |      |
| 1070  | 1075 | 1080 |
| Ser Glu Glu Asp Gly Lys Glu Arg Thr Asp Phe Gln Glu Glu Asn |      |      |
| 1085  | 1090 | 1095 |
| His Ile Cys Thr Phe Lys Gln Thr Leu Glu Asn Tyr Arg Thr Pro |      |      |
| 1100  | 1105 | 1110 |
| Asn Phe Gln Ser Tyr Asp Leu Asp Thr                         |      |      |
| 1115  |      |      |

&lt;210&gt; 295

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 295

ggaaccgaat ctcagcta 18

&lt;210&gt; 296

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 296

cctaaactga actggacca 19

&lt;210&gt; 297

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

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<210> 303

<211> 28

<212> DNA

<213> Artificial Sequence

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<400> 303

gcctttgaca accttcagtc actagtgg 28

<210> 304

<211> 24

<212> DNA

<213> Artificial Sequence

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<400> 304

ccccatgtgt ccatgactgt tccc 24

<210> 305

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 305

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<210> 306

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

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<400> 306

actccaagga aatcgatcc gttc 24

<210> 307

<211> 24



[illegible]



| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 |      |

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<211> 22
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<213> Artificial Sequence
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<220>  
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gcggccacgg tccttgga aa tg 22
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<212> DNA
<213> Artificial Sequence
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<220>  
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<212> DNA
<213> Homo Sapien
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cgccgctgtc ctccgggagc ggcagcagta gcccgggcgg cgagggctgg 100
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[illegible]

[illegible]

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Met Asp Phe Leu Leu Ala Leu Val Leu Val Ser Ser Leu Tyr Leu
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Gln Ala Ala Ala Glu Phe Asp Gly Arg Trp Pro Arg Gln Ile Val
          20          25          30
Ser Ser Ile Gly Leu Cys Arg Tyr Gly Gly Arg Ile Asp Cys Cys
          35          40          45
Trp Gly Trp Ala Arg Gln Ser Trp Gly Gln Cys Gln Pro Val Cys
          50          55          60
Gln Pro Arg Cys Lys His Gly Glu Cys Ile Gly Pro Asn Lys Cys
          65          70          75
Lys Cys His Pro Gly Tyr Ala Gly Lys Thr Cys Asn Gln Asp Leu
          80          85          90
Asn Glu Cys Gly Leu Lys Pro Arg Pro Cys Lys His Arg Cys Met
          95          100          105
Asn Thr Tyr Gly Ser Tyr Lys Cys Tyr Cys Leu Asn Gly Tyr Met
          110          115          120
Leu Met Pro Asp Gly Ser Cys Ser Ser Ala Leu Thr Cys Ser Met
          125          130          135
Ala Asn Cys Gln Tyr Gly Cys Asp Val Val Lys Gly Gln Ile Arg
          140          145          150
Cys Gln Cys Pro Ser Pro Gly Leu His Leu Ala Pro Asp Gly Arg
          155          160          165

```

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Thr | Cys | Val | Asp | Val<br>170 | Asp | Glu | Cys | Ala | Thr<br>175 | Gly | Arg | Ala | Ser | Cys<br>180 |
| Pro | Arg | Phe | Arg | Gln<br>185 | Cys | Val | Asn | Thr | Phe<br>190 | Gly | Ser | Tyr | Ile | Cys<br>195 |
| Lys | Cys | His | Lys | Gly<br>200 | Phe | Asp | Leu | Met | Tyr<br>205 | Ile | Gly | Gly | Lys | Tyr<br>210 |
| Gln | Cys | His | Asp | Ile<br>215 | Asp | Glu | Cys | Ser | Leu<br>220 | Gly | Gln | Tyr | Gln | Cys<br>225 |
| Ser | Ser | Phe | Ala | Arg<br>230 | Cys | Tyr | Asn | Val | Arg<br>235 | Gly | Ser | Tyr | Lys | Cys<br>240 |
| Lys | Cys | Lys | Glu | Gly<br>245 | Tyr | Gln | Gly | Asp | Gly<br>250 | Leu | Thr | Cys | Val | Tyr<br>255 |
| Ile | Pro | Lys | Val | Met<br>260 | Ile | Glu | Pro | Ser | Gly<br>265 | Pro | Ile | His | Val | Pro<br>270 |
| Lys | Gly | Asn | Gly | Thr<br>275 | Ile | Leu | Lys | Gly | Asp<br>280 | Thr | Gly | Asn | Asn | Asn<br>285 |
| Trp | Ile | Pro | Asp | Val<br>290 | Gly | Ser | Thr | Trp | Trp<br>295 | Pro | Pro | Lys | Thr | Pro<br>300 |
| Tyr | Ile | Pro | Pro | Ile<br>305 | Ile | Thr | Asn | Arg | Pro<br>310 | Thr | Ser | Lys | Pro | Thr<br>315 |
| Thr | Arg | Pro | Thr | Pro<br>320 | Lys | Pro | Thr | Pro | Ile<br>325 | Pro | Thr | Pro | Pro | Pro<br>330 |
| Pro | Pro | Pro | Leu | Pro<br>335 | Thr | Glu | Leu | Arg | Thr<br>340 | Pro | Leu | Pro | Pro | Thr<br>345 |
| Thr | Pro | Glu | Arg | Pro<br>350 | Thr | Thr | Gly | Leu | Thr<br>355 | Thr | Ile | Ala | Pro | Ala<br>360 |
| Ala | Ser | Thr | Pro | Pro<br>365 | Gly | Gly | Ile | Thr | Val<br>370 | Asp | Asn | Arg | Val | Gln<br>375 |
| Thr | Asp | Pro | Gln | Lys<br>380 | Pro | Arg | Gly | Asp | Val<br>385 | Phe | Ser | Val | Leu | Val<br>390 |
| His | Ser | Cys | Asn | Phe<br>395 | Asp | His | Gly | Leu | Cys<br>400 | Gly | Trp | Ile | Arg | Glu<br>405 |
| Lys | Asp | Asn | Asp | Leu<br>410 | His | Trp | Glu | Pro | Ile<br>415 | Arg | Asp | Pro | Ala | Gly<br>420 |
| Gly | Gln | Tyr | Leu | Thr        | Val | Ser | Ala | Ala | Lys        | Ala | Pro | Gly | Gly | Lys        |

|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 425 |  | 430 |  | 435 |
| Ala Ala Arg Leu Val Leu Pro Leu Gly Arg Leu Met His Ser Gly |     |  |     |  |     |
|   | 440 |  | 445 |  | 450 |
| Asp Leu Cys Leu Ser Phe Arg His Lys Val Thr Gly Leu His Ser |     |  |     |  |     |
|   | 455 |  | 460 |  | 465 |
| Gly Thr Leu Gln Val Phe Val Arg Lys His Gly Ala His Gly Ala |     |  |     |  |     |
|   | 470 |  | 475 |  | 480 |
| Ala Leu Trp Gly Arg Asn Gly Gly His Gly Trp Arg Gln Thr Gln |     |  |     |  |     |
|   | 485 |  | 490 |  | 495 |
| Ile Thr Leu Arg Gly Ala Asp Ile Lys Ser Glu Ser Gln Arg     |     |  |     |  |     |
|   | 500 |  | 505 |  |     |

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<220>  
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<210> 317  
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<400> 317  
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<210> 318  
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<400> 318  
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<210> 319  
 <211> 2110  
 <212> DNA

<400> 319

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| tttagattgt  | gaaatgtggc  | tcaaggtcct  | cacaactttc  | ctttcctttg  | 100  |
| caacaggtgc  | ttgctcgggg  | ctgaaggtga  | cagtgccatc  | acacactgtc  | 150  |
| catggcgta   | gaggtcaggc  | cctctaccta  | cccgtccact  | atggcttcca  | 200  |
| cactccagca  | tcagacatcc  | agatcatatg  | gctatttgag  | agaccccaca  | 250  |
| caatgcccaa  | atacttactg  | ggctctgtga  | ataagtctgt  | ggttcctgac  | 300  |
| ttggaatacc  | aacacaagtt  | caccatgatg  | ccacccaatg  | catctctgct  | 350  |
| tatcaaccca  | ctgcagttcc  | ctgatgaagg  | caattacatc  | gtgaagggtca | 400  |
| acattcaggg  | aaatggaact  | ctatctgcca  | gtcagaagat  | acaagtcacg  | 450  |
| gttgatgatc  | ctgtcacaaa  | gccagtgggtg | cagattcatc  | ctccctctgg  | 500  |
| ggctgtggag  | tatgtgggga  | acatgaccct  | gacatgccat  | gtggaagggg  | 550  |
| gcactcggct  | agcttaccaa  | tggctaaaaa  | atgggagacc  | tgtccacacc  | 600  |
| agctccacct  | actccttttc  | tccccaaaac  | aatacccttc  | atattgctcc  | 650  |
| agtaaccaag  | gaagacattg  | ggaattacag  | ctgcctgggtg | aggaaccctg  | 700  |
| tcagtgaaat  | ggaaagtgat  | atcattatgc  | ccatcatata  | ttatggacct  | 750  |
| tatggacttc  | aagtgaattc  | tgataaaggg  | ctaaaagtag  | gggaagtgtt  | 800  |
| tactgttgac  | cttgggagagg | ccatcctatt  | tgattgttct  | gctgattctc  | 850  |
| atccccccaa  | cacctactcc  | tggattagga  | ggactgacaa  | tactacatat  | 900  |
| atcattaagc  | atgggcctcg  | cttagaagtt  | gcctctgaga  | aagtagccca  | 950  |
| gaagacaatg  | gactatgtgt  | gctgtgctta  | caacaacata  | accggcaggc  | 1000 |
| aagatgaaac  | tcatttcaca  | gttatcatca  | cttccgtagg  | actggagaag  | 1050 |
| cttgcacaga  | aaggaaaatc  | attgtcacct  | ttagcaagta  | taactggaat  | 1100 |
| atcactattt  | ttgattatat  | ccatgtgtct  | tctcttccta  | tggaaaaaat  | 1150 |
| atcaacccta  | caaagttata  | aaacagaaac  | tagaaggcag  | gccagaaaca  | 1200 |
| gaatacacga  | aagctcaaac  | attttcaggc  | catgaagatg  | ctctggatga  | 1250 |



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 aaaaaactat gccttctctt ttttttcaat caccagtagt atttttgaga 2000  
 agacttgtga acacttaagg aaatgactat taaagtctta tttttatttt 2050  
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<210> 320

<211> 450

<212> PRT

<213> Homo Sapien

<400> 320

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Trp | Leu | Lys | Val | Phe | Thr | Thr | Phe | Leu | Ser | Phe | Ala | Thr | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Cys | Ser | Gly | Leu | Lys | Val | Thr | Val | Pro | Ser | His | Thr | Val | His |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Val | Arg | Gly | Gln | Ala | Leu | Tyr | Leu | Pro | Val | His | Tyr | Gly | Phe |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Thr | Pro | Ala | Ser | Asp | Ile | Gln | Ile | Ile | Trp | Leu | Phe | Glu | Arg |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Pro | His | Thr | Met | Pro<br>65  | Lys | Tyr | Leu | Leu | Gly<br>70  | Ser | Val | Asn | Lys | Ser<br>75  |
| Val | Val | Pro | Asp | Leu<br>80  | Glu | Tyr | Gln | His | Lys<br>85  | Phe | Thr | Met | Met | Pro<br>90  |
| Pro | Asn | Ala | Ser | Leu<br>95  | Leu | Ile | Asn | Pro | Leu<br>100 | Gln | Phe | Pro | Asp | Glu<br>105 |
| Gly | Asn | Tyr | Ile | Val<br>110 | Lys | Val | Asn | Ile | Gln<br>115 | Gly | Asn | Gly | Thr | Leu<br>120 |
| Ser | Ala | Ser | Gln | Lys<br>125 | Ile | Gln | Val | Thr | Val<br>130 | Asp | Asp | Pro | Val | Thr<br>135 |
| Lys | Pro | Val | Val | Gln<br>140 | Ile | His | Pro | Pro | Ser<br>145 | Gly | Ala | Val | Glu | Tyr<br>150 |
| Val | Gly | Asn | Met | Thr<br>155 | Leu | Thr | Cys | His | Val<br>160 | Glu | Gly | Gly | Thr | Arg<br>165 |
| Leu | Ala | Tyr | Gln | Trp<br>170 | Leu | Lys | Asn | Gly | Arg<br>175 | Pro | Val | His | Thr | Ser<br>180 |
| Ser | Thr | Tyr | Ser | Phe<br>185 | Ser | Pro | Gln | Asn | Asn<br>190 | Thr | Leu | His | Ile | Ala<br>195 |
| Pro | Val | Thr | Lys | Glu<br>200 | Asp | Ile | Gly | Asn | Tyr<br>205 | Ser | Cys | Leu | Val | Arg<br>210 |
| Asn | Pro | Val | Ser | Glu<br>215 | Met | Glu | Ser | Asp | Ile<br>220 | Ile | Met | Pro | Ile | Ile<br>225 |
| Tyr | Tyr | Gly | Pro | Tyr<br>230 | Gly | Leu | Gln | Val | Asn<br>235 | Ser | Asp | Lys | Gly | Leu<br>240 |
| Lys | Val | Gly | Glu | Val<br>245 | Phe | Thr | Val | Asp | Leu<br>250 | Gly | Glu | Ala | Ile | Leu<br>255 |
| Phe | Asp | Cys | Ser | Ala<br>260 | Asp | Ser | His | Pro | Pro<br>265 | Asn | Thr | Tyr | Ser | Trp<br>270 |
| Ile | Arg | Arg | Thr | Asp<br>275 | Asn | Thr | Thr | Tyr | Ile<br>280 | Ile | Lys | His | Gly | Pro<br>285 |
| Arg | Leu | Glu | Val | Ala<br>290 | Ser | Glu | Lys | Val | Ala<br>295 | Gln | Lys | Thr | Met | Asp<br>300 |
| Tyr | Val | Cys | Cys | Ala<br>305 | Tyr | Asn | Asn | Ile | Thr<br>310 | Gly | Arg | Gln | Asp | Glu<br>315 |
| Thr | His | Phe | Thr | Val        | Ile | Ile | Thr | Ser | Val        | Gly | Leu | Glu | Lys | Leu        |

| 320   | 325 | 330 |
|---|-----|-----|
| Ala Gln Lys Gly Lys Ser Leu Ser Pro Leu Ala Ser Ile Thr Gly |     |     |
| 335   | 340 | 345 |
| Ile Ser Leu Phe Leu Ile Ile Ser Met Cys Leu Leu Phe Leu Trp |     |     |
| 350   | 355 | 360 |
| Lys Lys Tyr Gln Pro Tyr Lys Val Ile Lys Gln Lys Leu Glu Gly |     |     |
| 365   | 370 | 375 |
| Arg Pro Glu Thr Glu Tyr Arg Lys Ala Gln Thr Phe Ser Gly His |     |     |
| 380   | 385 | 390 |
| Glu Asp Ala Leu Asp Asp Phe Gly Ile Tyr Glu Phe Val Ala Phe |     |     |
| 395   | 400 | 405 |
| Pro Asp Val Ser Gly Val Ser Arg Ile Pro Ser Arg Ser Val Pro |     |     |
| 410   | 415 | 420 |
| Ala Ser Asp Cys Val Ser Gly Gln Asp Leu His Ser Thr Val Tyr |     |     |
| 425   | 430 | 435 |
| Glu Val Ile Gln His Ile Pro Ala Gln Gln Gln Asp His Pro Glu |     |     |
| 440   | 445 | 450 |

&lt;210&gt; 321

&lt;211&gt; 25

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 321

gatcctgtca caaagccagt ggtgc 25

&lt;210&gt; 322

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 322

cactgacagg gttcctcacc cagg 24

&lt;210&gt; 323

&lt;211&gt; 45

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

<220>

<223> Synthetic Oligonucleotide Probe

<400> 323

ctccctctgg gctgtggagt atgtggggaa catgaccctg acatg 45

<210> 324

<211> 2397

<212> DNA

<213> Homo Sapien

<400> 324

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 acgttcgcgt catcacggac gagaactgga gagaactgct ggaaggagac 150  
 tggatgatag aattttatgc cccgtggtgc cctgcttgtc aaaatcttca 200  
 accggaatgg gaaagttttg ctgaatgggg agaagatctt gaggttaata 250  
 ttgcgaaagt agatgtcaca gagcagccag gactgagtgg acggtttata 300  
 ataactgctc ttctactat ttatcattgt aaagatggtg aatttaggcg 350  
 ctatcagggt ccaaggacta agaaggactt cataaacttt ataagtata 400  
 aagagtggaa gagtattgag cccgtttcat catggtttgg tccaggttct 450  
 gttctgatga gtagtatgtc agcactcttt cagctatcta tgtggatcag 500  
 gacgtgccat aactacttta ttgaagacct tggattgcca gtgtggggat 550  
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 ctctgtatga tatttggtggc agattgcctt tgtccttcaa aaaggcgcag 650  
 accacagcca taccataacc cttcaaaaaa attattatca gaatctgcac 700  
 aacctttgaa aaaagtggag gaggaacaag aggcggatga agaagatggt 750  
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 gaatgccata agacaacgct ctctgggtcc atcattggcc acagataaat 850  
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[illegible]

Arg Arg Arg Pro Gln Pro Tyr Pro Tyr Pro Ser Lys Lys Leu Leu

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 215 |     | 220 |     | 225 |     |     |     |     |     |     |     |     |     |
| Ser | Glu | Ser | Ala | Gln | Pro | Leu | Lys | Lys | Val | Glu | Glu | Glu | Gln | Glu |
|     | 230 |     |     |     |     |     |     |     | 235 |     |     |     | 240 |     |
| Ala | Asp | Glu | Glu | Asp | Val | Ser | Glu | Glu | Glu | Ala | Glu | Ser | Lys | Glu |
|     | 245 |     |     |     |     |     |     |     | 250 |     |     |     | 255 |     |
| Gly | Thr | Asn | Lys | Asp | Phe | Pro | Gln | Asn | Ala | Ile | Arg | Gln | Arg | Ser |
|     | 260 |     |     |     |     |     |     |     | 265 |     |     |     | 270 |     |
| Leu | Gly | Pro | Ser | Leu | Ala | Thr | Asp | Lys | Ser |     |     |     |     |     |
|     | 275 |     |     |     |     |     |     |     | 280 |     |     |     |     |     |

&lt;210&gt; 326

&lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 326

tgaggtgggc aagcggcgaa atg 23

&lt;210&gt; 327

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 327

tatgtggatc aggacgtgcc 20

&lt;210&gt; 328

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic Oligonucleotide Probe

&lt;400&gt; 328

tgcagggttc agtctagatt g 21

&lt;210&gt; 329

&lt;211&gt; 25

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

|             |            |            |            |            |     |
|-------------|------------|------------|------------|------------|-----|
| <400>       | 331        |            |            |            |     |
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| aacgggaccc  | ttctgtgtgc | cagaaaccgc | aagcagttgc | taaccacagt | 100 |
| ggacaggcgg  | attggaagag | cggaaggtc  | ctggcccaga | gcagtggtac | 150 |
| acttccctct  | gtgaccatga | aactctgggt | gtctgcattg | ctgatggcct | 200 |
| ggtttggtgt  | cctgagctgt | gtgcaggccg | aattcttcac | ctctattggg | 250 |
| cacatgactg  | acctgattta | tgcagagaaa | gagctggtgc | agtctctgaa | 300 |
| agagtacatc  | cttgtggagg | aagccaagct | ttccaagatt | aagagctggg | 350 |
| ccaacaaaat  | ggaagccttg | actagcaagt | cagctgctga | tgctgagggc | 400 |
| tacctggctc  | accctgtgaa | tgctacaaa  | ctggtgaagc | ggctaaacac | 450 |
| agactggcct  | gcgctggagg | accttgtcct | gcaggactca | gctgcaggtt | 500 |
| ttatcgccaa  | cctctctgtg | cagcggcagt | tcttccccac | tgatgaggac | 550 |
| gagataggag  | ctgccaaagc | cctgatgaga | cttcaggaca | catacaggct | 600 |
| ggaccacagg  | acaatttcca | gaggggaact | tccaggaacc | aagtaccagg | 650 |
| caatgctgag  | tgtggatgac | tgctttggga | tgggccgctc | ggcctacaat | 700 |
| gaaggggact  | attatcatat | ggtgttgtgg | atggagcagg | tgctaaagca | 750 |





cctaccagaa aaaaaaaaaa 2168

<211> 533

<212> PRT

<213> Homo Sapien

<400> 332

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Leu | Trp | Val | Ser | Ala | Leu | Leu | Met | Ala | Trp | Phe | Gly | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

Leu Ser Cys Val Gln Ala Glu Phe Phe Thr Ser Ile Gly His Met  
20 25 30

Thr Asp Leu Ile Tyr Ala Glu Lys Glu Leu Val Gln Ser Leu Lys  
35 40 45

Glu Tyr Ile Leu Val Glu Glu Ala Lys Leu Ser Lys Ile Lys Ser  
50 55 60

Trp Ala Asn Lys Met Glu Ala Leu Thr Ser Lys Ser Ala Ala Asp  
65 70 75

Ala Glu Gly Tyr Leu Ala His Pro Val Asn Ala Tyr Lys Leu Val  
80 85 90

Lys Arg Leu Asn Thr Asp Trp Pro Ala Leu Glu Asp Leu Val Leu  
95 100 105

Gln Asp Ser Ala Ala Gly Phe Ile Ala Asn Leu Ser Val Gln Arg  
110 115 120

Gln Phe Phe Pro Thr Asp Glu Asp Glu Ile Gly Ala Ala Lys Ala  
125 130 135

Leu Met Arg Leu Gln Asp Thr Tyr Arg Leu Asp Pro Gly Thr Ile  
140 145 150

Ser Arg Gly Glu Leu Pro Gly Thr Lys Tyr Gln Ala Met Leu Ser  
155 160 165

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asp | Asp | Cys | Phe | Gly | Met | Gly | Arg | Ser | Ala | Tyr | Asn | Glu | Gly |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |

Asp Tyr Tyr His Thr Val Leu Trp Met Glu Gln Val Leu Lys Gln  
185 190 195

Leu Asp Ala Gly Glu Glu Ala Thr Thr Thr Lys Ser Gln Val Leu  
200 205 210

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Tyr | Leu | Ser | Tyr | Ala | Val | Phe | Gln | Leu | Gly | Asp | Leu | His | Arg |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ala | Leu | Glu | Leu | Thr | Arg | Arg | Leu | Leu | Ser | Leu | Asp | Pro | Ser | His |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Arg | Ala | Gly | Gly | Asn | Leu | Arg | Tyr | Phe | Glu | Gln | Leu | Leu | Glu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Glu | Glu | Arg | Glu | Lys | Thr | Leu | Thr | Asn | Gln | Thr | Glu | Ala | Glu | Leu |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Ala | Thr | Pro | Glu | Gly | Ile | Tyr | Glu | Arg | Pro | Val | Asp | Tyr | Leu | Pro |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Glu | Arg | Asp | Val | Tyr | Glu | Ser | Leu | Cys | Arg | Gly | Glu | Gly | Val | Lys |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Leu | Thr | Pro | Arg | Arg | Gln | Lys | Arg | Leu | Phe | Cys | Arg | Tyr | His | His |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Gly | Asn | Arg | Ala | Pro | Gln | Leu | Leu | Ile | Ala | Pro | Phe | Lys | Glu | Glu |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Asp | Glu | Trp | Asp | Ser | Pro | His | Ile | Val | Arg | Tyr | Tyr | Asp | Val | Met |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Ser | Asp | Glu | Glu | Ile | Glu | Arg | Ile | Lys | Glu | Ile | Ala | Lys | Pro | Lys |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Leu | Ala | Arg | Ala | Thr | Val | Arg | Asp | Pro | Lys | Thr | Gly | Val | Leu | Thr |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Val | Ala | Ser | Tyr | Arg | Val | Ser | Lys | Ser | Ser | Trp | Leu | Glu | Glu | Asp |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Asp | Asp | Pro | Val | Val | Ala | Arg | Val | Asn | Arg | Arg | Met | Gln | His | Ile |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Thr | Gly | Leu | Thr | Val | Lys | Thr | Ala | Glu | Leu | Leu | Gln | Val | Ala | Asn |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Tyr | Gly | Val | Gly | Gly | Gln | Tyr | Glu | Pro | His | Phe | Asp | Phe | Ser | Arg |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Arg | Pro | Phe | Asp | Ser | Gly | Leu | Lys | Thr | Glu | Gly | Asn | Arg | Leu | Ala |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Thr | Phe | Leu | Asn | Tyr | Met | Ser | Asp | Val | Glu | Ala | Gly | Gly | Ala | Thr |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Val | Phe | Pro | Asp | Leu | Gly | Ala | Ala | Ile | Trp | Pro | Lys | Lys | Gly | Thr |
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<213> Homo Sapien

<400> 339

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| Met | Arg | Leu | Ser | Ser | Leu | Leu | Ala | Leu | Leu | Arg | Pro | Ala | Leu | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ile | Leu | Gly | Leu | Ser | Leu | Gly | Cys | Ser | Leu | Ser | Leu | Leu | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Trp | Ile | Gln | Gly | Glu | Gly | Glu | Asp | Pro | Cys | Val | Glu | Ala |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gly | Glu | Arg | Gly | Gly | Pro | Gln | Asn | Pro | Asp | Ser | Arg | Ala | Arg |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     |     |     | 60  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asp | Gln | Ser | Asp | Glu | Asp | Phe | Lys | Pro | Arg | Ile | Val | Pro | Tyr |
|     |     |     | 65  |     |     |     |     | 70  |     |     |     |     |     | 75  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Arg | Asp | Pro | Asn | Lys | Pro | Tyr | Lys | Lys | Val | Leu | Arg | Thr | Arg |
|     |     |     | 80  |     |     |     |     | 85  |     |     |     |     |     | 90  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ile | Gln | Thr | Glu | Leu | Gly | Ser | Arg | Glu | Arg | Leu | Leu | Val | Ala |
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| Val Leu Thr Ser | Arg Ala Thr Leu Ser     | Thr Leu Ala Val Ala Val |     |  |     |
|                 | 110                     | 115                     |     |  | 120 |
| Asn Arg Thr Val | Ala His His Phe Pro Arg | Leu Leu Tyr Phe Thr     |     |  |     |
|                 | 125                     | 130                     |     |  | 135 |
| Gly Gln Arg Gly | Ala Arg Ala Pro Ala Gly | Met Gln Val Val Ser     |     |  |     |
|                 | 140                     | 145                     |     |  | 150 |
| His Gly Asp Glu | Arg Pro Ala Trp Leu Met | Ser Glu Thr Leu Arg     |     |  |     |
|                 | 155                     | 160                     |     |  | 165 |
| His Leu His Thr | His Phe Gly Ala Asp Tyr | Asp Trp Phe Phe Ile     |     |  |     |
|                 | 170                     | 175                     |     |  | 180 |
| Met Gln Asp Asp | Thr Tyr Val Gln Ala Pro | Arg Leu Ala Ala Leu     |     |  |     |
|                 | 185                     | 190                     |     |  | 195 |
| Ala Gly His Leu | Ser Ile Asn Gln Asp Leu | Tyr Leu Gly Arg Ala     |     |  |     |
|                 | 200                     | 205                     |     |  | 210 |
| Glu Glu Phe Ile | Gly Ala Gly Glu Gln Ala | Arg Tyr Cys His Gly     |     |  |     |
|                 | 215                     | 220                     |     |  | 225 |
| Gly Phe Gly Tyr | Leu Leu Ser Arg Ser Leu | Leu Leu Arg Leu Arg     |     |  |     |
|                 | 230                     | 235                     |     |  | 240 |
| Pro His Leu Asp | Gly Cys Arg Gly Asp Ile | Leu Ser Ala Arg Pro     |     |  |     |
|                 | 245                     | 250                     |     |  | 255 |
| Asp Glu Trp Leu | Gly Arg Cys Leu Ile Asp | Ser Leu Gly Val Gly     |     |  |     |
|                 | 260                     | 265                     |     |  | 270 |
| Cys Val Ser Gln | His Gln Gly Gln Gln Tyr | Arg Ser Phe Glu Leu     |     |  |     |
|                 | 275                     | 280                     |     |  | 285 |
| Ala Lys Asn Arg | Asp Pro Glu Lys Glu Gly | Ser Ser Ala Phe Leu     |     |  |     |
|                 | 290                     | 295                     |     |  | 300 |
| Ser Ala Phe Ala | Val His Pro Val Ser Glu | Gly Thr Leu Met Tyr     |     |  |     |
|                 | 305                     | 310                     |     |  | 315 |
| Arg Leu His Lys | Arg Phe Ser Ala Leu Glu | Leu Glu Arg Ala Tyr     |     |  |     |
|                 | 320                     | 325                     |     |  | 330 |
| Ser Glu Ile Glu | Gln Leu Gln Ala Gln Ile | Arg Asn Leu Thr Val     |     |  |     |
|                 | 335                     | 340                     |     |  | 345 |
| Leu Thr Pro Glu | Gly Glu Ala Gly Leu Ser | Trp Pro Val Gly Leu     |     |  |     |
|                 | 350                     | 355                     |     |  | 360 |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Pro | Ala | Pro | Phe | Thr<br>365 | Pro | His | Ser | Arg | Phe<br>370 | Glu | Val | Leu | Gly | Trp<br>375 |
| Asp | Tyr | Phe | Thr | Glu<br>380 | Gln | His | Thr | Phe | Ser<br>385 | Cys | Ala | Asp | Gly | Ala<br>390 |
| Pro | Lys | Cys | Pro | Leu<br>395 | Gln | Gly | Ala | Ser | Arg<br>400 | Ala | Asp | Val | Gly | Asp<br>405 |
| Ala | Leu | Glu | Thr | Ala<br>410 | Leu | Glu | Gln | Leu | Asn<br>415 | Arg | Arg | Tyr | Gln | Pro<br>420 |
| Arg | Leu | Arg | Phe | Gln<br>425 | Lys | Gln | Arg | Leu | Leu<br>430 | Asn | Gly | Tyr | Arg | Arg<br>435 |
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| Glu | Cys | Val | Thr | Gln<br>455 | Arg | Gly | His | Arg | Arg<br>460 | Ala | Leu | Ala | Arg | Arg<br>465 |
| Val | Ser | Leu | Leu | Arg<br>470 | Pro | Leu | Ser | Arg | Val<br>475 | Glu | Ile | Leu | Pro | Met<br>480 |
| Pro | Tyr | Val | Thr | Glu<br>485 | Ala | Thr | Arg | Val | Gln<br>490 | Leu | Val | Leu | Pro | Leu<br>495 |
| Leu | Val | Ala | Glu | Ala<br>500 | Ala | Ala | Ala | Pro | Ala<br>505 | Phe | Leu | Glu | Ala | Phe<br>510 |
| Ala | Ala | Asn | Val | Leu<br>515 | Glu | Pro | Arg | Glu | His<br>520 | Ala | Leu | Leu | Thr | Leu<br>525 |
| Leu | Leu | Val | Tyr | Gly<br>530 | Pro | Arg | Glu | Gly | Gly<br>535 | Arg | Gly | Ala | Pro | Asp<br>540 |
| Pro | Phe | Leu | Gly | Val<br>545 | Lys | Ala | Ala | Ala | Ala<br>550 | Glu | Leu | Glu | Arg | Arg<br>555 |
| Tyr | Pro | Gly | Thr | Arg<br>560 | Leu | Ala | Trp | Leu | Ala<br>565 | Val | Arg | Ala | Glu | Ala<br>570 |
| Pro | Ser | Gln | Val | Arg<br>575 | Leu | Met | Asp | Val | Val<br>580 | Ser | Lys | Lys | His | Pro<br>585 |
| Val | Asp | Thr | Leu | Phe<br>590 | Phe | Leu | Thr | Thr | Val<br>595 | Trp | Thr | Arg | Pro | Gly<br>600 |
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| Gln | Ala | Phe | Phe | Pro<br>620 | Val | His | Phe | Gln | Glu<br>625 | Phe | Asn | Pro | Ala | Leu<br>630 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Pro | Gln | Arg | Ser | Pro | Pro | Gly | Pro | Pro | Gly | Ala | Gly | Pro | Asp |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |
| Pro | Pro | Ser | Pro | Pro | Gly | Ala | Asp | Pro | Ser | Arg | Gly | Ala | Pro | Ile |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |
| Gly | Gly | Arg | Phe | Asp | Arg | Gln | Ala | Ser | Ala | Glu | Gly | Cys | Phe | Tyr |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |
| Asn | Ala | Asp | Tyr | Leu | Ala | Ala | Arg | Ala | Arg | Leu | Ala | Gly | Glu | Leu |
|     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |     | 690 |
| Ala | Gly | Gln | Glu | Glu | Glu | Glu | Ala | Leu | Glu | Gly | Leu | Glu | Val | Met |
|     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     | 705 |
| Asp | Val | Phe | Leu | Arg | Phe | Ser | Gly | Leu | His | Leu | Phe | Arg | Ala | Val |
|     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Glu | Pro | Gly | Leu | Val | Gln | Lys | Phe | Ser | Leu | Arg | Asp | Cys | Ser | Pro |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |
| Arg | Leu | Ser | Glu | Glu | Leu | Tyr | His | Arg | Cys | Arg | Leu | Ser | Asn | Leu |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |
| Glu | Gly | Leu | Gly | Gly | Arg | Ala | Gln | Leu | Ala | Met | Ala | Leu | Phe | Glu |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |
| Gln | Glu | Gln | Ala | Asn | Ser | Thr |     |     |     |     |     |     |     |     |
|     |     |     |     | 770 |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 340

&lt;211&gt; 1572

&lt;212&gt; DNA

&lt;213&gt; Homo Sapien

&lt;400&gt; 340

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 gtagaatcaa tgaaaagact taacagcctt ctcaatatcc cagaaaagtg 700  
 tcctgaacag ggagggatga tttggaagat atctgaagat aaacagctag 750  
 cagtttgcct gaaatatgct ggagtatttg cagaaaatgc agaagatgct 800  
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 ggcaatgact tatcacccca accaggtagt agaaggctgt tgttcagata 900  
 tggctgttac ttttaatgga ctgactccaa atcagatgca tgtgatgatg 950  
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 ggttttctta cctccaaatg gttctgacaa tgactgagaa gtggtagaaa 1050  
 agcgtgaata tgatctttgt ataggacgtg tgttgtcatt attttagta 1100  
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 ggggtggtttt tttctttaaa acacatgaac attgtaaatg tgttggaag 1250  
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<211> 318

<212> PRT

<213> Homo Sapien

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| Met | Leu | Ser | Glu | Ser | Ser | Phe | Leu | Lys | Gly | Val | Met | Leu | Gly |     |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Ile | Phe | Cys | Ala | Leu | Ile | Thr | Met | Leu | Gly | His | Ile | Arg | Ile |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Gly | His | Gly | Asn | Arg | Met | His | His | His | Glu | His | His | His | Leu | Gln |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Ala | Pro | Asn | Lys | Glu | Asp | Ile | Leu | Lys | Ile | Ser | Glu | Asp | Glu | Arg |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Met | Glu | Leu | Ser | Lys | Ser | Phe | Arg | Val | Tyr | Cys | Ile | Ile | Leu | Val |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Lys | Pro | Lys | Asp | Val | Ser | Leu | Trp | Ala | Ala | Val | Lys | Glu | Thr | Trp |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Thr | Lys | His | Cys | Asp | Lys | Ala | Glu | Phe | Phe | Ser | Ser | Glu | Asn | Val |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Lys | Val | Phe | Glu | Ser | Ile | Asn | Met | Asp | Thr | Asn | Asp | Met | Trp | Leu |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Met | Met | Arg | Lys | Ala | Tyr | Lys | Tyr | Ala | Phe | Asp | Lys | Tyr | Arg | Asp |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Gln | Tyr | Asn | Trp | Phe | Phe | Leu | Ala | Arg | Pro | Thr | Thr | Phe | Ala | Ile |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Ile | Glu | Asn | Leu | Lys | Tyr | Phe | Leu | Leu | Lys | Lys | Asp | Pro | Ser | Gln |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Pro | Phe | Tyr | Leu | Gly | His | Thr | Ile | Lys | Ser | Gly | Asp | Leu | Glu | Tyr |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Val | Gly | Met | Glu | Gly | Gly | Ile | Val | Leu | Ser | Val | Glu | Ser | Met | Lys |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Arg | Leu | Asn | Ser | Leu | Leu | Asn | Ile | Pro | Glu | Lys | Cys | Pro | Glu | Gln |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Gly | Gly | Met | Ile | Trp | Lys | Ile | Ser | Glu | Asp | Lys | Gln | Leu | Ala | Val |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Cys | Leu | Lys | Tyr | Ala | Gly | Val | Phe | Ala | Glu | Asn | Ala | Glu | Asp | Ala |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asp | Gly | Lys | Asp | Val | Phe | Asn | Thr | Lys | Ser | Val | Gly | Leu | Ser | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Lys | Glu | Ala | Met | Thr | Tyr | His | Pro | Asn | Gln | Val | Val | Glu | Gly | Cys |

Asp Asn Asp

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<220>  
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| $\langle 210 \rangle$ | 344 |
| $\langle 211 \rangle$ | 28  |

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<210> 348

<211> 48

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<213> Artificial Sequence

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<210> 349

<211> 47

<212> DNA

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<220>

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<400> 349

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<210> 350

<211> 48

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<213> Artificial Sequence

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

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<210> 351

<211> 48

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<210> 352

<211> 47

<212> DNA

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<400> 353

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<211> 48

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<400> 354

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<210> 360  
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<210> 365

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<210> 367

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<211> 47

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<400> 368

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<210> 370

<211> 48

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<210> 371

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<400> 371

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<210> 372

<211> 47

<212> DNA

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<210> 373

<211> 48

<212> DNA

<213> Artificial Sequence

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<211> 47

<212> DNA

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<223> Synthetic Oligonucleotide Probe

ggattctaatac gactcactat agggccagct acccgcaggagg 47

<211> 48

<213> Artificial Sequence

<223> Synthetic Oligonucleotide Probe

ctatqaaatt aaccctcact aaagggatcc caggtgatga ggtccaga 48

<211> 997

<213> Homo Sapien

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agqqaqqaq agaaaaagag agagagagaa acaaaaaacc aaagagagag 100

aaaaaatgaa ttcatctaaa tcatctgaaa cacaatgcac agagagagga 150

tqcttctctt cccaaatggt cttatggact gttgctggga tccccatcct 200

atttctcagt gcctgtttca tcaccagatg tgttgtgaca tttcgcattct 250

ttcaaacctg tgatgagaaa aagtttcagc tacctgagaa ttccacagag 300

ctctcctgct acaattatgg atcaggttca gtcaagaatt gttgtccatt 350

gaactgggaa tattttcaat ccagctgcta cttcttttct actgacacca 400

tttcttgggc gtttaagtta aagaactgct cagccatggg ggctcacctg 450

gtqggttatca actcacagga ggagcaggaa ttcctttcct acaagaaacc 500

taaaatqaga qagtttttta ttggactgtc agaccaggtt gtcgagggtc 550

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gatgtagggg agcccaacaa catagctacc ctggaggact gtgccaccat 650

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tcaattattt tcggatttqt gaaatggtag gaataaatcc ttggaacaaa 750

ggaaaatctc tttaagaaca gaaggcacia ctcaaattgtg taaagaagga 800  
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<210> 377

<211> 219

<212> PRT

<213> Homo Sapien

<400> 377

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| Met | Asn | Ser | Ser | Lys | Ser | Ser | Glu | Thr | Gln | Cys | Thr | Glu | Arg | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Cys | Phe | Ser | Ser | Gln | Met | Phe | Leu | Trp | Thr | Val | Ala | Gly | Ile | Pro |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ile | Leu | Phe | Leu | Ser | Ala | Cys | Phe | Ile | Thr | Arg | Cys | Val | Val | Thr |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Phe | Arg | Ile | Phe | Gln | Thr | Cys | Asp | Glu | Lys | Lys | Phe | Gln | Leu | Pro |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Glu | Asn | Phe | Thr | Glu | Leu | Ser | Cys | Tyr | Asn | Tyr | Gly | Ser | Gly | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Val | Lys | Asn | Cys | Cys | Pro | Leu | Asn | Trp | Glu | Tyr | Phe | Gln | Ser | Ser |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Cys | Tyr | Phe | Phe | Ser | Thr | Asp | Thr | Ile | Ser | Trp | Ala | Leu | Ser | Leu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Lys | Asn | Cys | Ser | Ala | Met | Gly | Ala | His | Leu | Val | Val | Ile | Asn | Ser |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Gln | Glu | Glu | Gln | Glu | Phe | Leu | Ser | Tyr | Lys | Lys | Pro | Lys | Met | Arg |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Glu | Phe | Phe | Ile | Gly | Leu | Ser | Asp | Gln | Val | Val | Glu | Gly | Gln | Trp |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Gln | Trp | Val | Asp | Gly | Thr | Pro | Leu | Thr | Lys | Ser | Leu | Ser | Phe | Trp |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Asp | Val | Gly | Glu | Pro | Asn | Asn | Ile | Ala | Thr | Leu | Glu | Asp | Cys | Ala |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |

Thr Met Arg Asp Ser Ser Asn Pro Arg Gln Asn Trp Asn Asp Val  
                           185                          190                          195

Thr Cys Phe Leu Asn Tyr Phe Arg Ile Cys Glu Met Val Gly Ile  
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Asn Pro Leu Asn Lys Gly Lys Ser Leu  
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<210> 380

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<400> 381

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<400> 382  
ggccttgacg acaaccgt 18

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<400> 384  
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<212> DNA

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<210> 389

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<400> 389

tgccagctgc atgctgccag tt 22

<210> 390

<211> 20

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<210> 391

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<400> 391

<210> 392

<211> 21

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<400> 392

gacggcatcc tcagggccac a 21

<210> 393

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<223> Synthetic oligonucleotide probe

<400> 393

atgtcctcca tgcccacgcg 20

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gaagagcaca gctgcagatc c 21

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<210> 401  
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| Met | Ala | Leu | Arg | Arg | Pro | Pro | Arg | Leu | Arg | Leu | Cys | Ala | Arg | Leu |
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| Pro | Asp | Phe | Phe | Leu | Leu | Leu | Leu | Phe | Arg | Gly | Cys | Leu | Ile | Gly |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala | Val | Asn | Leu | Lys | Ser | Ser | Asn | Arg | Thr | Pro | Val | Val | Gln | Glu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Phe | Glu | Ser | Val | Glu | Leu | Ser | Cys | Ile | Ile | Thr | Asp | Ser | Gln | Thr |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ser | Asp | Pro | Arg | Ile | Glu | Trp | Lys | Lys | Ile | Gln | Asp | Glu | Gln | Thr |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Thr | Tyr | Val | Phe | Phe | Asp | Asn | Lys | Ile | Gln | Gly | Asp | Leu | Ala | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Arg | Ala | Glu | Ile | Leu | Gly | Lys | Thr | Ser | Leu | Lys | Ile | Trp | Asn | Val |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Thr | Arg | Arg | Asp | Ser | Ala | Leu | Tyr | Arg | Cys | Glu | Val | Val | Ala | Arg |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Asn | Asp | Arg | Lys | Glu | Ile | Asp | Glu | Ile | Val | Ile | Glu | Leu | Thr | Val |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Gln | Val | Lys | Pro | Val | Thr | Pro | Val | Cys | Arg | Val | Pro | Lys | Ala | Val |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Pro | Val | Gly | Lys | Met | Ala | Thr | Leu | His | Cys | Gln | Glu | Ser | Glu | Gly |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| His | Pro | Arg | Pro | His | Tyr | Ser | Trp | Tyr | Arg | Asn | Asp | Val | Pro | Leu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Pro | Thr | Asp | Ser | Arg | Ala | Asn | Pro | Arg | Phe | Arg | Asn | Ser | Ser | Phe |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Leu | Asn | Ser | Glu | Thr | Gly | Thr | Leu | Val | Phe | Thr | Ala | Val | His |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Lys | Asp | Asp | Ser | Gly | Gln | Tyr | Tyr | Cys | Ile | Ala | Ser | Asn | Asp | Ala |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Gly | Ser | Ala | Arg | Cys | Glu | Glu | Gln | Glu | Met | Glu | Val | Tyr | Asp | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asn | Ile | Gly | Gly | Ile | Ile | Gly | Gly | Val | Leu | Val | Val | Leu | Ala | Val |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Leu | Ala | Leu | Ile | Thr | Leu | Gly | Ile | Cys | Cys | Ala | Tyr | Arg | Arg | Gly |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Tyr | Phe | Ile | Asn | Asn | Lys | Gln | Asp | Gly | Glu | Ser | Tyr | Lys | Asn | Pro |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Gly | Lys | Pro | Asp | Gly | Val | Asn | Tyr | Ile | Arg | Thr | Asp | Glu | Glu | Gly |
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| Asp | Phe | Arg | His | Lys | Ser | Ser | Phe | Val | Ile |     |     |     |     |     |
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